```
=> file reg
FILE 'REGISTRY' ENTERED AT 11:45:15 ON 14 JUL 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 American Chemical Society (ACS)


=> display history full l1-

     FILE 'HCA' ENTERED AT 10:02:54 ON 14 JUL 2006
L1             QUE CAT# OR CATALY?
L2         49969 SEA (PORE# OR PORO? OR MICROPORE# OR MICROPORO? OR
                 NANOPORE# OR NANOPORO? OR PERMEA? OR PERFORAT? OR SIEVE?
                 OR PERVIOUS? OR PERVA? OR SEMIPERMEA?)(2A)(SUBSTRAT? OR
                 SURFACE? OR BASE# OR SUBSTRUCT? OR UNDERSTRUCT? OR
                 UNDERLAY? OR FOUNDATION?)

     FILE 'REGISTRY' ENTERED AT 10:03:07 ON 14 JUL 2006
                   E ZIRCONIA/CN
L3               1 SEA ZIRCONIA/CN
                   E LITHIUM/CN
L4               1 SEA LITHIUM/CN
                   E SODIUM/CN
L5               1 SEA SODIUM/CN
                   E POTASSIUM/CN
L6               1 SEA POTASSIUM/CN
                   E RUBIDIUM/CN
L7               1 SEA RUBIDIUM/CN
                   E CESIUM/CN
L8               1 SEA CESIUM/CN
L9            1729 SEA (FE(L)CR(L)AL(L)Y)/ELS
                   E RU/ELS
L10         148383 SEA RU/ELS
L11             16 SEA L9 AND L10
L12         148367 SEA L10 NOT L9

     FILE 'HCA' ENTERED AT 10:07:37 ON 14 JUL 2006
L13              8 SEA L11
L14              0 SEA L13 AND L1

     FILE 'LCA' ENTERED AT 10:08:03 ON 14 JUL 2006
L15           1777 SEA (L4 OR L5 OR L6 OR L7 OR L8) OR (ALK# OR ALKALI#)(2A)
                   (METAL#### OR SOURC? OR MODIF?)

     FILE 'HCA' ENTERED AT 10:10:34 ON 14 JUL 2006
L16         132237 SEA L3 OR ZIRCONIA# OR (ZIRCONIUM# OR ZR)(W)(OXIDE# OR
```

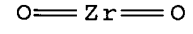
```
                DIOXIDE#) OR ZRO2
L17          2608 SEA L9 OR FECRALY
L18               QUE L12 OR RUTHENIUM# OR RU
L19           243 SEA METAL####(2A)(FELT OR FELTS)
L20         19288 SEA (PORE# OR PORO? OR MICROPORE# OR MICROPORO? OR
                NANOPORE# OR NANOPORO? OR PERMEA? OR PERFORAT? OR SIEVE?
                OR PERVIOUS? OR PERVA? OR SEMIPERMEA?)(2A)(BED OR BEDS
                OR BEDDED OR BEDDING# OR SUPPORT?)
L21            14 SEA L19 AND L1
L22             2 SEA L21 AND (L2 OR L20)
L23             1 SEA L21 AND L15
L24             1 SEA L21 AND L16
L25             1 SEA L21 AND L17
L26             0 SEA L21 AND L18
L27             5 SEA (L22 OR L23 OR L24 OR L25 OR L26)
L28           170 SEA L1 AND L17
L29             9 SEA L28 AND (L2 OR L20)
L30             5 SEA L28 AND L15
L31            21 SEA L28 AND L16
L32            11 SEA L28 AND L18
L33             7 SEA L31 AND L32
L34             1 SEA L1 AND L17 AND L19
L35         11732 SEA L1 AND (L2 OR L20)
L36         40519 SEA L1 AND L15
L37         17937 SEA L1 AND L16
L38         33693 SEA L1 AND L18
L39            25 SEA L35 AND L36 AND L37 AND L38

     FILE 'REGISTRY' ENTERED AT 11:15:19 ON 14 JUL 2006
                E WATER/CN
L40             1 SEA WATER/CN
                E CARBON MONOXIDE/CN
L41             1 SEA "CARBON MONOXIDE"/CN
                E HYDROGEN/CN
L42             1 SEA HYDROGEN/CN

     FILE 'LCA' ENTERED AT 11:15:57 ON 14 JUL 2006
L43         32138 SEA (PRODUC? OR PROD# OR GENERAT? OR MANUF? OR MFR# OR
                CREAT? OR FORM## OR FORMING# OR FORMAT? OR MAKE# OR
                MADE# OR MAKING# OR FABRICAT? OR SYNTHESI? OR PREPAR? OR
                PREP#)/BI,AB

     FILE 'HCA' ENTERED AT 11:18:09 ON 14 JUL 2006
L44         269112 SEA L42/P OR (H2 OR H OR HYDROGEN#)(2A)L43
L45         603871 SEA L40 OR STEAM? OR WATERGAS? OR (WATER? OR H2O)(2A)(GAS
                ## OR GASIF? OR GASEOUS?)
L46         171700 SEA L41 OR CARBON#(A)MONOXIDE# OR CO(A)(GAS## OR
```

```
                GASEOUS? OR GASIF? OR ATM# OR ATMOS? OR SOURC? OR
                STREAM? OR FLOW? OR INTRODUC? OR TREAT? OR PRETREAT? OR
                FURNISH? OR PROCESS? OR SUPPLY? OR SUPPLIED OR APPLY? OR
                APPLIED OR APPLICATION? OR INJECT?)
L47         5398 SEA L44 AND L45 AND L46
L48            7 SEA L47 AND L17
L49            0 SEA L47 AND L19
L50           15 SEA L19 AND (L44 OR L45 OR L46)
L51           62 SEA L47 AND (L2 OR L20)
L52          219 SEA L47 AND L15
L53          291 SEA L47 AND L16
L54          295 SEA L47 AND L18
L55            5 SEA L51 AND L52
L56           13 SEA L51 AND L53
L57            6 SEA L51 AND L54
L58           28 SEA L52 AND L53
L59           28 SEA L52 AND L53
L60           65 SEA L53 AND L54
L61           28 SEA L58 AND L59
L62            9 SEA L58 AND L60
L63            9 SEA L59 AND L60
L64            9 SEA L58 AND L59 AND L60
L65           26 SEA L27 OR L29 OR L30 OR L33 OR L34
L66           13 SEA (L21 OR L32) NOT L65
L67           36 SEA (L31 OR L39) NOT (L65 OR L66)
L68           16 SEA L65 AND 1840-2001/PY,PRY
L69           11 SEA L66 AND 1840-2001/PY,PRY
L70           23 SEA L67 AND 1840-2001/PY,PRY
L71           25 SEA (L48 OR L55 OR L57 OR L62 OR L63 OR L64) NOT (L68 OR
                L69 OR L70)
L72           19 SEA (L50 OR L56) NOT (L68 OR L69 OR L70 OR L71)
L73           15 SEA L61 NOT (L68 OR L69 OR L70 OR L71 OR L72)
L74           15 SEA L71 AND 1840-2001/PY,PRY
L75           11 SEA L72 AND 1840-2001/PY,PRY
L76            6 SEA L73 AND 1840-2001/PY,PRY


=> file hca
FILE 'HCA' ENTERED AT 11:45:48 ON 14 JUL 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)


=> d l68 1-16 cbib abs hitstr hitind
```

L68 ANSWER 1 OF 16 HCA COPYRIGHT 2006 ACS on STN
140:30688 Heat exchanger with **catalyst**. Munje, Satish R.; McKenna, Bruce A. (Exothermics, Inc., USA). U.S. US 6667011 B1 20031223, 11 pp. (English). CODEN: USXXAM. APPLICATION: US 2000-531826 20000321.

AB This invention relates to a heat exchanger which contains **catalyzed** screens and/or **felt metal** cloth for removing materials such as pollutants and other impurities from exhaust gases or another fluid while simultaneously recovering heat energy from the gaseous exhaust or other fluids. The recuperative heat exchanger with a **catalyst** comprises a heat exchanger core composed of a plurality of spaced apart plate members. The plate members are positioned in adjacent and substantially parallel relationship. The plate members define a first plurality of passageways and a second plurality of passageways which extend between the spaced apart plate members. The first plurality of passageways is sep. from the second plurality of passageways. The first plurality of passageways is disposed for receiving high temp. exhaust gases while the second plurality of passageways is disposed for receiving supply air. A **catalyst** material, comprising a support material coated or impregnated with a suitable **catalytic** agent for removal of pollutants, is disposed within the first plurality of passageways.

IT **1314-23-4**, **Zirconium oxide**, uses
(heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM F01N003-10
ICS B01D053-34
INCL 422173000; 422177000; 422180000
CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST **catalytic** recuperative heat exchanger exhaust gas treatment hydrocarbon; flue gas treatment **catalytic** recuperative heat exchanger
IT Screens (mesh)
(**catalyst** support material; heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)
IT Oxidation

(**catalytic**; heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)

IT **Metallic** fibers
(**felt** cloth comprising, as **catalyst** support material; heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)

IT **Catalysts**
Flue gases
Waste gases
(heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)

IT Platinum-group metals
Zeolites (synthetic), uses
(heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)

IT Volatile organic compounds
(heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)

IT **Felts**
(**metal**; heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)

IT Heat
(recovery; heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)

IT Heat exchangers
(recuperators; heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)

IT 1344-28-1, Alumina, uses 11109-50-5
(**catalyst** support material; heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)

IT **1314-23-4**, **Zirconium oxide**, uses
1314-35-8, Tungsten oxide, uses 1332-29-2, Tin oxide 1332-37-2, Iron oxide, uses 1344-70-3, Copper oxide 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7631-86-9, Silica, uses 11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide 11104-61-3, Cobalt oxide 11118-57-3, Chromium oxide 11129-18-3, Cerium oxide 11129-60-5, Manganese oxide 13463-67-7, Titanium oxide, uses
(heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)

IT 124-38-9, Carbon dioxide, processes 7727-37-9, Nitrogen, processes

7732-18-5, Water, processes
(heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)
IT 11107-04-3
(heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)
IT 630-08-0, Carbon monoxide, processes 11104-93-1, Nitrogen oxide, processes
(heat exchanger with **catalyst** for removing impurities from exhaust gases while simultaneously recovering heat energy)

L68 ANSWER 2 OF 16 HCA COPYRIGHT 2006 ACS on STN
138:225745 Enhanced NOx trap having increased durability. Deeba, Michel; Chen, Shau-Lin F.; Hochmuth, John K.; Burk, Patrick L.; Wei, Xinyi (Engelhard Corporation, USA). U.S. Pat. Appl. Publ. US 2003045424 A1 20030306, 9 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-933586 20010821.

AB A **catalytic** trap disposed in an exhaust passage of an internal combustion engine which is operated with periodic alternations between lean and stoichiometric or rich conditions, for abatement of NOx in an exhaust gas stream which is generated by the engine. The trap comprises a **catalytic** trap material and a refractory carrier member on which the **catalytic** trap material is disposed. The **catalytic** trap material comprises: (i) a refractory metal oxide support; (ii) a **catalytic** component effective for promoting the redn. of NOx under stoichiometric or rich conditions; and (iii) a NOx sorbent effective for adsorbing the NOx under lean conditions and desorbing and reducing the NOx to nitrogen under stoichiometric or rich conditions. The NOx sorbent comprises a metal oxide selected from the group consisting of one or **alkali metal** oxides, **alk.** earth **metal** oxides and mixts. of one or more **alkali metal** oxides and **alk** . earth **metal** oxides. The manganese component is selected from the group consisting of: (1) a manganese oxide, (2) a mixed oxide of manganese and a transition metal and/or a rare earth metal, (3) a compd. of an **alkali metal** and a manganese oxide, (4) a compd. of an **alk.** earth **metal** and a manganese oxide and (5) mixts. of the foregoing oxides and compds.

IT **63706-52-5**, Iron alloy, Fe,Al,Cr,Y (Fecralloy)
(carrier; enhanced NOx trap with manganese component having increased durability)
RN 63706-52-5 HCA
CN Iron alloy, base, Fe,Al,Cr,Y (Fecralloy) (9CI) (CA INDEX NAME)

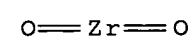
Component	Component Percent	Component Registry Number
Fe	65 - 79	7439-89-6

Cr	20		7440-47-3
Al	0.5 -	12	7429-90-5
Y	0.1 -	3	7440-65-5

IC ICM B01D053-56
ICS B01J023-34
INCL 502324000; 423239100; 502024000
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
IT Adsorption apparatus
Exhaust gas **catalytic** converters
Trapping apparatus
(NOx trap; enhanced NOx trap with manganese component having increased durability)
IT **Catalysts**
(three-way; enhanced NOx trap with manganese component having increased durability)
IT 1302-74-5, Corundum, uses 1302-88-1, Cordierite 1302-93-8, Mullite 7784-30-7, Aluminum phosphate 37220-25-0, Aluminum titanate 60800-19-3, Aluminum zirconium oxide **63706-52-5**, Iron alloy, Fe,Al,Cr,Y (Fecralloy)
(carrier; enhanced NOx trap with manganese component having increased durability)

L68 ANSWER 3 OF 16 HCA COPYRIGHT 2006 ACS on STN
137:188010 A **catalyst** and method of steam reforming. Wang, Yong; Tonkovich, Anna Lee Y.; Vanderwiel, David P. (Battelle Memorial Institute, USA). PCT Int. Appl. WO 2002066371 A2 20020829, 32 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-US4479 20020215. PRIORITY: US 2001-788293 20010216; US 2002-76881 20020213.
AB The present invention provides a method of steam reforming a hydrocarbon over a **catalyst** at short residence times or short contact times. The present invention also provides spinel-contg. **catalysts.** Surprisingly superior results and properties obtained in methods and **catalysts** of the present invention are also described.
IT **1314-23-4, Zirconia**, uses **7440-18-8, Ruthenium**, uses
(a **catalyst** and method of steam reforming esp.

Fischer-Tropsch synthetic fuels)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

IT **12606-73-4**
(**catalyst** support; a **catalyst** and method of
steam reforming esp. Fischer-Tropsch synthetic fuels)
RN 12606-73-4 HCA
CN Aluminum alloy, nonbase, Al,Cr,Fe,Y (9CI) (CA INDEX NAME)

Component	Component Registry Number
Al	7429-90-5
Cr	7440-47-3
Fe	7439-89-6
Y	7440-65-5

IC ICM C01B003-40
ICS B01J027-22; B01J023-00; B01J023-40; B01J023-46; B01J035-10;
B01J035-04; B01J037-02
CC 51-4 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 67
ST steam reforming **catalyst** synthetic crude
IT Diesel fuel
Fischer-Tropsch reaction
Jet aircraft fuel
Steam reforming
(a **catalyst** and method of steam reforming esp.
Fischer-Tropsch synthetic fuels)
IT Group IVB element carbides
Spinel-group minerals
(a **catalyst** and method of steam reforming esp.
Fischer-Tropsch synthetic fuels)
IT Gasoline

Petroleum, processes
(a **catalyst** and method of steam reforming esp. Fischer-Tropsch synthetic fuels)

IT Petroleum reforming **catalysts**
(steam reforming; a **catalyst** and method of steam reforming esp. Fischer-Tropsch synthetic fuels)

IT Fuels
(synthetic; a **catalyst** and method of steam reforming esp. Fischer-Tropsch synthetic fuels)

IT **1314-23-4**, **Zirconia**, uses 7439-88-5, Iridium, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses **7440-18-8**, **Ruthenium**, uses 12068-51-8, Aluminum magnesium oxide (Al2MgO4) 12070-12-1, Tungsten carbide 12627-57-5, Molybdenum carbide 12680-36-3, Rhodium oxide
(a **catalyst** and method of steam reforming esp. Fischer-Tropsch synthetic fuels)

IT 74-82-8, Methane, processes 106-97-8, Butane, processes 540-84-1, Isooctane
(a **catalyst** and method of steam reforming esp. Fischer-Tropsch synthetic fuels)

IT 10139-58-9, Rhodium nitrate 10377-60-3, Magnesium nitrate
(a **catalyst** and method of steam reforming esp. Fischer-Tropsch synthetic fuels)

IT **12606-73-4**
(**catalyst** support; a **catalyst** and method of steam reforming esp. Fischer-Tropsch synthetic fuels)

IT 1309-48-4, Magnesium oxide (MgO), uses
(passivation layer; a **catalyst** and method of steam reforming esp. Fischer-Tropsch synthetic fuels)

IT 1344-28-1, γ-Alumina, uses
(γ-; a **catalyst** and method of steam reforming esp. Fischer-Tropsch synthetic fuels)

L68 ANSWER 4 OF 16 HCA COPYRIGHT 2006 ACS on STN
137:49281 **Catalytic** partial oxidation process using a **catalyst** system having an upstream and a downstream part.
Kramer, Gert Jan; Leenhouts, Willem Pieter; Schoonebeek, Ronald Jan; Wijnbelt, Johannes (Shell Internationale Research Maatschappij BV, Neth.). PCT Int. Appl. WO 2002047805 A2 20020620, 23 pp.
DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI,

FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-EP14753 20011213. PRIORITY: EP 2000-311291 20001215.

AB The invention relates to a process for the **catalytic** partial oxidn. of a hydrocarbon feedstock, wherein the feed mixt. and a mol.-oxygen contg. gas are contacted with a **catalyst** system having two stages, upstream and downstream, the downstream zone being a **porous** fixed **catalyst bed** reactor. In the upstream reactor the **catalyst** system only partly fills the cross-sectional area of the fluid flow path reactor and in the downstream part of the reactor the **catalyst** system completely fills the cross-sectional area of the fluid flow path. The partial oxidn. **catalysts** are coated onto a high temp.-resistant metal, such as fecralloy. The invention further relates to a reactor comprising such a **catalyst** system and a **catalytic** reaction zone for the water-gas shift conversion of the effluent of the **catalyst** system, to a fuel cell system comprising such a reactor and a fuel cell, and to a vehicle provided with such a fuel cell system.

IT **133328-32-2**, PM 2000
(foil, dipped, pressed into ring; upstream; two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

RN 133328-32-2 HCA

CN Iron alloy, base, Fe,Al,Cr,Ti,Y2O3 (PM2000) (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	74	7439-89-6
Cr	20	7440-47-3
Al	5.5	7429-90-5
Ti	0.5	7440-32-6
Y2O3	0.5	1314-36-9

IC ICM B01J012-00
ICS B01J008-04; C01B003-38

CC 48-8 (Unit Operations and Processes)
Section cross-reference(s): 51, 52, 55

ST partial oxidn **catalyst** two part fixed bed synthesis gas; synthesis gas manufg **catalytic** fuel cell fecralloy stabilized zirconium; vehicle fuel cell naphtha partial oxidn **catalyst**

IT Foils
(**catalyst**; two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

IT Wires
(cloth, knitted fibers; two step fixed bed **catalytic**

partial oxidn. process using **catalyst** system having upstream and downstream part)

IT Reactors
(fixed-bed, **catalytic**; two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

IT Synthesis gas manufacturing
(partial oxidn.; two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

IT Oxidation **catalysts**
(partial, non-**porous**, **surface**; two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

IT Flow
(swirling, feed mixt. over downstream **catalyst**; two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

IT Fuel cells
Water gas shift reaction
Water gas shift reaction **catalysts**
(two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

IT Hydrocarbons, processes
Naphtha
(two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

IT 58719-23-6, Fecralloy
(**catalyst** support; two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

IT 7439-88-5, Iridium, uses 7440-16-6, Rhodium, uses 7440-67-7, Zirconium, uses
(dip-coated; two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

IT **133328-32-2**, PM 2000
(foil, dipped, pressed into ring; upstream; two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

IT 205519-33-1, Resistalloy
(knitted wire, pressed cylindrical pellet, dipped; downstream; two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

IT 1314-23-4, Zirconium oxide, uses
(stabilized with 4% calcium oxide, dip coating; two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)
IT 7782-44-7, Oxygen, reactions
(two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)
IT 1333-74-0P, Hydrogen, reactions
(two step fixed bed **catalytic** partial oxidn. process using **catalyst** system having upstream and downstream part)

L68 ANSWER 5 OF 16 HCA COPYRIGHT 2006 ACS on STN
136:56241 Supported nickel-magnesium oxide **catalysts** and processes for the production of syngas. Figueroa, Juan C.; Gaffney, Anne M.; Mattson, Ronald H., Sr.; Pierce, Donald B.; Oswald, Robert A.; Song, Roger (Conoco, Inc., USA). PCT Int. Appl. WO 2001096234 A2 **20011220**, 27 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US19252 20010613. PRIORITY: US 2000-PV211077 20000613.
AB **Catalysts** comprising a **catalytically** active metal on a NiO-MgO coated **porous** metal alloy **support** that are active for **catalyzing** the oxidative conversion of methane to CO and H2 are disclosed. The preferred **catalytically** active metal is rhodium and the **porous** metal alloy **support** is preferably a perforated fecralloy foil. A method of making the **catalysts** and coated supports, and processes for using the new **catalysts** for converting light hydrocarbons, such as methane, to synthesis gas, are disclosed.
IT 63706-52-5, Fecralloy
(foil; **catalyst** support; supported nickel-magnesium oxide **catalysts** and processes for the prodn. of syngas)
RN 63706-52-5 HCA
CN Iron alloy, base, Fe,Al,Cr,Y (Fecralloy) (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	65 - 79	7439-89-6
Cr	20	7440-47-3

Al 0.5 - 12 7429-90-5
Y 0.1 - 3 7440-65-5

IC ICM C01B003-38
CC 51-11 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 67
ST partial oxidn **catalyst** syngas manufg
IT **Catalysts**
(partial oxidn.; supported nickel-magnesium oxide **catalysts** and processes for the prodn. of syngas)
IT Fuel gas manufacturing
(supported nickel-magnesium oxide **catalysts** and processes for the prodn. of syngas)
IT Metals, uses
(supported nickel-magnesium oxide **catalysts** and processes for the prodn. of syngas)
IT 7440-16-6, Rhodium, uses
(**catalytic** promoter; supported nickel-magnesium oxide **catalysts** and processes for the prodn. of syngas)
IT 74-82-8, Methane, reactions
(feedstock; supported nickel-magnesium oxide **catalysts** and processes for the prodn. of syngas)
IT **63706-52-5**, Fecralloy
(foil; **catalyst** support; supported nickel-magnesium oxide **catalysts** and processes for the prodn. of syngas)
IT 1309-48-4, Magnesium oxide, uses 1313-99-1, Nickel oxide, uses
(supported nickel-magnesium oxide **catalysts** and processes for the prodn. of syngas)

L68 ANSWER 6 OF 16 HCA COPYRIGHT 2006 ACS on STN
136:21980 Dimensionally stable gas diffusion electrodes for electrochemical cells. Gestermann, Fritz; Pinter, Hans-Dieter; Soppe, Alfred; Weuta, Peter (Bayer Aktiengesellschaft, Germany). PCT Int. Appl. WO 2001093353 A1 **20011206**, 35 pp.
DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (German).
CODEN: PIXXD2. APPLICATION: WO 2001-EP5780 20010521. PRIORITY: DE 2000-10027339 20000602.
AB The invention relates to a dimensionally stable gas diffusion electrode and to a method for producing the same. The inventive electrode comprises at least one electroconducting **catalyst** substrate

for receiving a coating mass that contains a **catalyst** material, and one elec. connection. The **catalyst** substrate may be a tissue, a nonwoven, a foam, a sintered **metal** body or **felt** from an electroconducting material, an expanded metal plate or a metal plate that is provided with a multitude of openings, on which the coating material that contains the **catalyst** material is applied. The **catalyst** substrate, if not sufficiently rigid itself, is firmly linked with a gas-permeable, **alkali**-resistant **metal** base plate, esp. produced from nickel or one of its alloys in a mech. and electroconducting manner.

IC ICM H01M004-86
ICS H01M004-88; H01M008-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72

IT **Catalysts**
(electrocatalysts; dimensionally stable gas diffusion electrodes for electrochem. cells)

L68 ANSWER 7 OF 16 HCA COPYRIGHT 2006 ACS on STN

131:60897 **Catalytic** premixed fiber burners. Saracco, Guido; Cerri, Isotta; Specchia, Vito; Accornero, Romano (Dipartimento di Scienza dei Materiali e Ingegneria Chimica, Politecnico di Torino, Corso Duca degli Abruzzi, Turin, 24-10129, Italy). Chemical Engineering Science, 54(15-16), 3599-3608 (English) **1999**. CODEN: CESCAC. ISSN: 0009-2509. Publisher: Elsevier Science Ltd..

AB The performances of three premixed fiber burners (max. rated power: 30 kW), based on the same FeCrAlloy **porous support** , were tested in a specific pilot plant. The first one was a com. FeCrAlloy panel (the ref. burner); the other two were **catalytically** activated by deposition onto the fibers of the LaMnO3 perovskite, according to two different procedures: "direct" and "indirect route". The latter, in which an LaAlO3 layer was placed between the **catalyst** and the fibers to prevent deactivation, should be preferred for the presumably major stability and const. performance in the long term. The flue gas temp., the NOx, CO and HC flue gas concns. and the emission intensity of the panel surface, were measured as a function of Ea (excess of air) and Q (sp. heat power). Besides, the operating combustion regimes (radiant, transition and blue-flame) were identified by direct observation of the burner surface. As compared to the non-**catalytic** burner, the two **catalytic** ones enabled, with nearly unchanged NOx prodn., up to .apprx.5 times lower CO and HC emissions, particularly in the radiant combustion regime. As a result, a wider rangeability of the burner (down to .apprx.10% of the max. specific operating power, where non-**catalytic** burner failed), with environmentally acceptable flue gas compn., was achieved.

IT **70727-99-0**, Fecralloy
(**catalytic** premixed fiber burners for emission redn.)

RN 70727-99-0 HCA

CN Iron alloy, base, Fe,Al,Cr,Y (Fecralloy) (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	70 - 81	7439-89-6
Cr	15 - 22	7440-47-3
Al	4 - 5.2	7429-90-5
Y	0 - 0.4	7440-65-5

CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 47, 59
ST burner **catalytic** premixed fiber emission
IT Perovskite-type crystals
(LaMnO3; **catalytic** premixed fiber burners for emission redn.)
IT Flue gases
(boiler; **catalytic** premixed fiber burners for emission redn.)
IT Combustion
Combustion **catalysts**
(**catalytic** premixed fiber burners for emission redn.)
IT Hydrocarbons, formation (nonpreparative)
(**catalytic** premixed fiber burners for emission redn.)
IT Burners
(**catalytic**; **catalytic** premixed fiber burners for emission redn.)
IT 12031-12-8, Lanthanum manganese oxide (LaMnO3)
(**catalytic** premixed fiber burners for emission redn.)
IT 12003-65-5, Aluminum lanthanum oxide (AlLaO3) **70727-99-0**, Fecralloy
(**catalytic** premixed fiber burners for emission redn.)
IT 630-08-0, Carbon monoxide, formation (nonpreparative) 11104-93-1, Nitrogen oxide, formation (nonpreparative)
(**catalytic** premixed fiber burners for emission redn.)
IT 74-82-8, Methane, reactions
(**catalytic** premixed fiber burners for emission redn.)

L68 ANSWER 8 OF 16 HCA COPYRIGHT 2006 ACS on STN
130:268556 Process for applying a coating to a porous, three-dimensional network of material. Schuh, Lothar; Gutzeit, Heidemarie; Herschel, Philipp (ABB Lummus Global Inc., USA). PCT Int. Appl. WO 9915715 A2 **19990401**, 29 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY,

KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1998-US19811 19980923. PRIORITY: US 1997-59795 19970923; US 1998-97483 19980821.

AB A product comprising a 3-dimensional network of material, e.g., a plurality of layers of fibers is coated by applying particles by electrophoretic coating to coat the exterior surface and at least a portion of the interior of the product. The particles are a **catalyst**, a **catalyst** precursor or a **catalyst** support, e.g., γ-Al2O3 (av. particle size 0.5 μm), to provide a **catalyst** structure in which **catalyst** may be supported as a coating in the interior and on the exterior of a 3-dimensional network of material having a high void vol. Edge effects may be reduced by control or disruption of field lines during the coating. Larger particles may be electrophoretically coated onto a product by the use of smaller particles which function as a "glue". A **catalyst** bed comprising plurality of layers of metal fibers coated with **catalyst** particles as described above is claimed.

IC ICM C25D013-00

CC 42-2 (Coatings, Inks, and Related Products)
Section cross-reference(s): 40, 67

ST electrophoretic coating process **catalyst** particle application **metal** fiber **felt**; alumina particle application **metal** fiber **felt** electrophoretic coating

IT Reactors
(**catalytic**; electrophoretic coating process for applying **catalyst** particle coating to a porous, three-dimensional network of metal fibers in manuf. of **catalyst** bed)

IT **Metallic** fibers
(**felts**; electrophoretic coating process for applying **catalyst** particle coating to a porous, three-dimensional network of metal fibers in manuf. of **catalyst** bed)

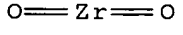
IT **Felts**
(**metal**; electrophoretic coating process for applying **catalyst** particle coating to a porous, three-dimensional network of metal fibers in manuf. of **catalyst** bed)

IT **Catalyst** supports
Catalysts
(particles; electrophoretic coating process for applying **catalyst** particle coating to a porous, three-dimensional network of metal fibers in manuf. of **catalyst** bed)

IT **Porous** materials
(**substrates**; electrophoretic coating process for applying coating to a porous, three-dimensional network of

material)
IT 1344-28-1, Alumina, uses
(γ-, particles; electrophoretic coating process for applying **catalyst** particle coating to a porous, three-dimensional network of metal fibers in manuf. of **catalyst** bed)

L68 ANSWER 9 OF 16 HCA COPYRIGHT 2006 ACS on STN
128:298712 Honeycomb carrier for **catalytic** converters and its manufacture. Brunson, Gordon W.; Zoccola, Bryce J. (Engelhard Corporation, USA). PCT Int. Appl. WO 9815354 A1 **19980416**, 30 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1997-US18044 19971003. PRIORITY: US 1996-728641 19961010.
AB A method for making a honeycomb carrier body and product formed thereby in which a corrugated foil strip is provided having opposite side edges and corrugations oriented at an oblique angle to the side edges is described. The corrugated foil strip is folded on lines perpendicular to the side edges to provide a core body having fluid passages between opposite ends and a shaped periphery defined by parallel outside folds in the corrugated strip. The core body thus formed is inserted into a jacket tube so that folds at the core body periphery are in compressive contact with the jacket tube, and the periphery of the core body is joined to the jacket tube. Preferably, the corrugated foil strip is coated before the folding step, such as with an oxide layer, a **catalytic** coating or both, prior to the folding step. The periphery of the folded core body is then cleaned such as by grit blasting to remove the coating and reveal a clean metallic surface at the outside folds of the foil strip before the body is inserted into the jacket tube.
IT **1314-23-4**, **Zirconia**, uses **7440-18-8**, **Ruthenium**, uses
(honeycomb carrier for **catalytic** converters and its manuf.)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IT **88507-81-7**, Haynes 214
(honeycomb carrier for **catalytic** converters and its manuf.)
RN 88507-81-7 HCA
CN Nickel alloy, base, Ni 72-79,Cr 15.0-17.0,Al 4.0-5.0,Fe 2.0-4.0,Mn 0-0.5,Mo 0-0.5,Ti 0-0.5,W 0-0.5,Si 0-0.2,C 0-0.05,Zr 0-0.05,Y 0.002-0.050,P 0-0.015,S 0-0.015,B 0-0.006 (UNS N07214) (9CI) (CA INDEX NAME)

Component	Component Percent			Component Registry Number
Ni	72	-	79	7440-02-0
Cr	15.0	-	17.0	7440-47-3
Al	4.0	-	5.0	7429-90-5
Fe	2.0	-	4.0	7439-89-6
Mn	0	-	0.5	7439-96-5
Mo	0	-	0.5	7439-98-7
Ti	0	-	0.5	7440-32-6
W	0	-	0.5	7440-33-7
Si	0	-	0.2	7440-21-3
C	0	-	0.05	7440-44-0
Zr	0	-	0.05	7440-67-7
Y	0.002	-	0.040	7440-65-5
P	0	-	0.015	7723-14-0
S	0	-	0.015	7704-34-9
B	0	-	0.006	7440-42-8

IC ICM B01J035-04
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST honeycomb support manuf **catalytic** converter; exhaust gas treatment honeycomb **catalyst** support
IT Exhaust gas **catalytic** converters
Exhaust gases (engine)
(honeycomb carrier for **catalytic** converters and its manuf.)
IT Platinum-group metals

(honeycomb carrier for **catalytic** converters and its manuf.)

IT **Catalyst** supports
(honeycomb; honeycomb carrier for **catalytic** converters and its manuf.)

IT 1306-38-3, Ceria, uses **1314-23-4**, **Zirconia**, uses 1344-28-1, Alumina, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses **7440-18-8**, **Ruthenium**, uses 7440-74-6, Indium, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses
(honeycomb carrier for **catalytic** converters and its manuf.)

IT **88507-81-7**, Haynes 214 94076-32-1, Haynes 230 146100-95-0, Amdry 767 206195-73-5
(honeycomb carrier for **catalytic** converters and its manuf.)

L68 ANSWER 10 OF 16 HCA COPYRIGHT 2006 ACS on STN

122:269435 Method for making thin carbon foam electrodes. Pekala, Richard W.; Mayer, Steven T.; Kaschmitter, James L.; Morrison, Robert L. (University of California, USA). PCT Int. Appl. WO 9506002 A1 **19950302**, 12 pp. DESIGNATED STATES: W: CA, JP; RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1994-US9547 19940823. PRIORITY: US 1993-110003 19930823.

AB Thin, flat C electrodes are fabricated by infiltrating highly porous C papers, membranes, **felts**, **metal** fibers or powders, or fabrics with a C foam precursor material. The infiltrated C paper, for example, is then cured to form a gel-satd. C paper, which is subsequently dried and pyrolyzed to form a thin sheet of porous carbon. Precursor materials include polyacrylonitrile (PAN), polymethylacrylonitrile (PMAN), resorcinol/formaldehyde, catechol/formaldehyde, phenol/formaldehyde, or their mixts. These thin films are ideal for use as high power and energy electrodes in batteries, capacitors, and fuel cells, and are potentially useful for capacitive deionization, filtration and **catalysis**.

IC ICM C01B031-02
ICS H01M004-04

CC 49-1 (Industrial Inorganic Chemicals)
Section cross-reference(s): 52

IT Electrodes
(carbon; carbon foam electrodes manuf. by pyrolyzing **porous substrate** infiltrated with carbon foam precursor)

IT 7440-44-0P, Carbon, preparation
(electrodes; carbon foam electrodes manuf. by pyrolyzing **porous substrate** infiltrated with carbon foam

precursor)

L68 ANSWER 11 OF 16 HCA COPYRIGHT 2006 ACS on STN
119:78031 Manufacture of heat-resistant semifinished thin products of iron, nicke, or cobalt alloys. Behr, Friedrich; Foller, Michael; Laban, Rolf (Thyssen Edelstahlwerke AG, Germany). Ger. DE 4222026 C1 **19930415**, 8 pp. (German). CODEN: GWXXAW.
APPLICATION: DE 1992-4222026 19920704.

AB The title, <0.5 mm-thick products contg. >18% Cr are prepd. by coating the starting Fe, Ni, or Co alloys contg. no or small amt. of Cr with ≥1 Cr layer, and at least diffusion annealing them in a reducing atm. or vacuum at 950-13500. The Cr-coated alloys can be a ferritic steel contg. >7% Cr, a Ni alloy contg. >20% Cr, or Cr- and Al-contg. alloys for heating elements contg. small amts. of rare earth elements, y, Ti, Zr, **alkali metals**, and/or Hf whose Cr content is increased by ≥3% by the diffusion annealing. The starting alloy can be continuously plated with Cr. The process can be used for the prepn. of **catalyst** supports.

IT **149058-00-4**
(coating of, with chromium, electrochem., for diffusion annealing for **catalyst** supports)

RN 149058-00-4 HCA
CN Iron alloy, base, Fe 72-84,Cr 12-16,Al 4-9,Si 0.2-0.7,Ni 0-0.6,Mn 0-0.5,Mo 0-0.4,C 0-0.2,Ti 0-0.2,Y 0-0.2,Zr 0-0.2 (9CI) (CA INDEX NAME)

Component	Component Percent			Component Registry Number
Fe	72	-	84	7439-89-6
Cr	12	-	16	7440-47-3
Al	4	-	9	7429-90-5
Si	0.2	-	0.7	7440-21-3
Ni	0	-	0.6	7440-02-0
Mn	0	-	0.5	7439-96-5
Mo	0	-	0.4	7439-98-7
C	0	-	0.2	7440-44-0
Ti	0	-	0.2	7440-32-6
Y	0	-	0.2	7440-65-5
Zr	0	-	0.2	7440-67-7

IC ICM C23C010-38
ICS B01J037-08; C22C019-05; C22C038-18; C21D009-00
CC 56-7 (Nonferrous Metals and Alloys)
Section cross-reference(s): 67
ST iron alloy chromium diffusion annealing; nickel alloy chromium diffusion annealing; cobalt alloy chromium diffusion annealing;

catalyst support chromium diffusion annealing; chromium coating diffusion annealing alloy

IT Catalysts and Catalysis
(supports, cobalt or iron or nickel alloy, chromium diffusion annealing in manuf. of high-chromium)

IT Cobalt alloy, base
Iron alloy, base
(coating of, with chromium, electrochem., for diffusion annealing for catalyst supports)

IT 80340-64-3 149058-00-4
(coating of, with chromium, electrochem., for diffusion annealing for catalyst supports)

L68 ANSWER 12 OF 16 HCA COPYRIGHT 2006 ACS on STN

117:155247 Aluminum-containing ferritic stainless steel having high oxidation resistance and toughness. Naoto, Hiramatsu; Yoshihiro, Uematsu (Nisshin Steel Co., Ltd., Japan). Eur. Pat. Appl. EP 480461 A1 19920415, 11 pp. DESIGNATED STATES: R: DE, FR, GB, IT, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1991-117384 19911011. PRIORITY: JP 1990-270521 19901011.

AB The ferritic stainless steel contains C, N, and P ≤0.03 each, Cr 15-25, Si and Mn <0.25 each, S <0.001, Al 3-6, and Y, alk .-earth metals, and/or rare earth metals 0.01-0.2%, optionally with Nb, V, and/or Ti 0.05-1%. Oxidn. resistance and fracture toughness are promoted by ≤0.13 Mn and ≤0.17% Si. The stainless steel is suitable for manuf. of foil catalyst supports in automotive exhaust systems. Thus, a small ingot from stainless steel (contg. C 0.014, Si 0.07, Mn 0.04, P 0.025, S 0.0003, Cr 16.91, Al 5.71, N 0.012, and Y 0.09%) was forged, machined, hot rolled, and cold rolled to manuf. the foil 30 μm thick. In tests at 1150°, abnormal oxidn. started after 710 h. Impact fracture toughness of hot-rolled specimens was 4.1 kg-m/cm2. The resp. values for the similar stainless steel contg. 0.33 Si and 0.53% Mn were 120 h and 1.4 kg-m/cm2.

IT 143735-02-8 143735-03-9
(microalloying of, for oxidn. resistance and toughness, foil manuf. after)

RN 143735-02-8 HCA

CN Iron alloy, base, Fe 77,Cr 17,Al 5.7,Nb 0.5,Si 0.1,Y 0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	77	7439-89-6
Cr	17	7440-47-3
Al	5.7	7429-90-5
Nb	0.5	7440-03-1

Si	0.1	7440-21-3
Y	0.1	7440-65-5

RN 143735-03-9 HCA
CN Iron alloy, base, Fe 75,Cr 20,Al 4.9,Si 0.2,Y 0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	75	7439-89-6
Cr	20	7440-47-3
Al	4.9	7429-90-5
Si	0.2	7440-21-3
Y	0.1	7440-65-5

IC ICM C22C038-18
CC 55-3 (Ferrous Metals and Alloys)
Section cross-reference(s): 59
ST stainless steel foil **catalyst** support; ferritic stainless steel oxidn resistance; automotive exhaust stainless steel foil
IT **Catalysts** and **Catalysis**
(supports, stainless steel, foils from ferritic, for automobile exhaust systems)
IT 143735-01-7, Aluminum 3-6, chromium 15-25, iron 69-82, manganese 0-0.2, silicon 0-0.2 **143735-02-8 143735-03-9**
143735-04-0 143735-05-1 143735-06-2 143735-07-3
(microalloying of, for oxidn. resistance and toughness, foil manuf. after)

L68 ANSWER 13 OF 16 HCA COPYRIGHT 2006 ACS on STN
117:116139 Manufacture of ferritic stainless steel sheet having whiskers for coating with alumina. Uematsu, Yoshihiro; Miyakusu, Katsuhisa; Hiramatsu, Naoto (Nisshin K. K., Japan). Jpn. Kokai Tokkyo Koho JP 04052252 A2 **19920220** Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-163130 19900621.
AB A sheet of ferritic stainless steel (contg. Cr 15-20, Al 3-8, Ti 0.03-0.5, and rare earth metal, Y, and/or **alk.**-earth **metal** 0.01-2%) is bright annealed, finished by cold rolling, and heated in an oxidizing atm. at 800-1000°. The oxidized sheet surface has ultrafine crystal whiskers grown after the activation in bright annealing. The whisker-covered surface shows high coatability with Al2O3, esp. for **catalyst** supports.
IT **143176-14-1 143176-15-2**
(whiskers on ferritic, bright annealing and oxidn. for forming of, in coating with alumina for **catalyst** supports)
RN 143176-14-1 HCA

CN Iron alloy, base, Fe 75,Cr 18,Al 5.6,Mn 0.3,Si 0.3,Ti 0.3,Y 0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	75	7439-89-6
Cr	18	7440-47-3
Al	5.6	7429-90-5
Mn	0.3	7439-96-5
Si	0.3	7440-21-3
Ti	0.3	7440-32-6
Y	0.1	7440-65-5

RN 143176-15-2 HCA
CN Iron alloy, base, Fe 76,Cr 18,Al 5.4,Ti 0.4,Mn 0.3,Si 0.3,Y 0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	76	7439-89-6
Cr	18	7440-47-3
Al	5.4	7429-90-5
Ti	0.4	7440-32-6
Mn	0.3	7439-96-5
Si	0.3	7440-21-3
Y	0.1	7440-65-5

IC ICM C22C038-00
ICS C21D001-76; C21D008-02; C21D009-46; C22C038-28
CC 55-11 (Ferrous Metals and Alloys)
Section cross-reference(s): 57
IT Crystal whiskers
(oxide, ferritic stainless steel sheet with, for coatability with alumina for **catalyst** supports)
IT 143176-11-8 143176-12-9 143176-13-0 **143176-14-1**
143176-15-2 143176-16-3
(whiskers on ferritic, bright annealing and oxidn. for forming of, in coating with alumina for **catalyst** supports)

L68 ANSWER 14 OF 16 HCA COPYRIGHT 2006 ACS on STN
116:198725 New **metallic felts** with improved resistance to high temperature oxidation. Delaunay, C.; Locq, D.; Walder, A. (Off. Natl. Etud. Rech. Aerosp., Chatillon, Fr.). Adv. Mater. Processes, Proc. Eur. Conf., 1st, Meeting Date 1989, Volume 1, 553-8. Editor(s): Exner, Hans Eckart; Schumacher, V. DGM

Informationsges.: Oberursel, Germany. (English) 1990.
CODEN: 57OFAT.

AB **Metallic felts** with high-temp. oxidn. resistance were fabricated from Fe-Ni-Cr-Al-y fibers prepd. by melt-spinning. The sintering of fibers which is performed in an halogenous gas phase gives high porosity materials (>95%) which can be reduced by pressing. These felts, which were originally conceived for turboengine abradable seals, find applications in **catalytic** exhaust for motor vehicle or as dust filters at high temp.

IT **136270-85-4**, Aluminum 6, chromium 20, iron 36, nickel 37, yttrium 0.5 **140855-52-3**, Aluminum 7, chromium 15, iron 42, nickel 37, yttrium 0.5 **140855-53-4**, Aluminum 7, chromium 20, iron 36, nickel 37, yttrium 0.5
(felts, from melt-spun fibers, sintering and high-temp. oxidn. resistance of)

RN 136270-85-4 HCA

CN Nickel alloy, base, Ni 37,Fe 36,Cr 20,Al 6,Y 0.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	37	7440-02-0
Fe	36	7439-89-6
Cr	20	7440-47-3
Al	6	7429-90-5
Y	0.5	7440-65-5

RN 140855-52-3 HCA

CN Iron alloy, base, Fe 42,Ni 37,Cr 15,Al 7,Y 0.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	42	7439-89-6
Ni	37	7440-02-0
Cr	15	7440-47-3
Al	7	7429-90-5
Y	0.5	7440-65-5

RN 140855-53-4 HCA

CN Nickel alloy, base, Ni 37,Fe 36,Cr 20,Al 7,Y 0.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

Ni	37	7440-02-0
Fe	36	7439-89-6
Cr	20	7440-47-3
Al	7	7429-90-5
Y	0.5	7440-65-5

CC 56-4 (Nonferrous Metals and Alloys)
IT **136270-85-4**, Aluminum 6, chromium 20, iron 36, nickel 37, yttrium 0.5 **140855-52-3**, Aluminum 7, chromium 15, iron 42, nickel 37, yttrium 0.5 **140855-53-4**, Aluminum 7, chromium 20, iron 36, nickel 37, yttrium 0.5
(felts, from melt-spun fibers, sintering and high-temp. oxidn. resistance of)

L68 ANSWER 15 OF 16 HCA COPYRIGHT 2006 ACS on STN
94:181528 **Catalytic** process involving carbon monoxide and hydrogen. Rankin, James Deans; Twigg, Martyn Vincent (Imperial Chemical Industries Ltd., UK). Eur. Pat. Appl. EP 21736 **19810107**, 26 pp. (English). CODEN: EPXXDW. APPLICATION: EP 1980-301982 19800612.
AB A gas contg. H is produced by reaction in the gaseous phase of a hydrocarbon, a hydrocarbon deriv. or CO with steam and/or CO2 in presence of a **catalyst** supported on a metal or alloy resistant to the reaction conditions. In particular, CO is reacted with steam at 200-300° over a **catalyst** contg. metallic Cu or at 300-450° over an Fe oxide-Cr oxide **catalyst** or at 200-400° over a **catalyst** comprising a sulfide of Co or Ni in combination with a sulfide of Mo and/or W and possibly an **alkali metal** hydroxide or weak acid salt. The processes of MeOH synthesis and purifn. of a H stream of C oxides by conversion of such oxides to CH4 are included. The **catalyst** support is an Fe alloy contg. Al, Cr, and/or Si. The alloy may contain 20-30% Cr, 15-40% Ni, balance minor constituents, and Fe. The alloy may contain 0.5-12% Al and 0.01-3% Y. The **catalyst** includes a secondary support layer of refractory oxides material adhering to the surface. The **catalyst** is in the form of units of open 3-dimensional configuration having one dimension in the range 5-20 mm, with the largest dimension not less than 0.2 nor more than 5 times the smallest.
IT **70727-99-0**
(**catalysts** support, for processes involving, carbon monoxide and hydrogen)
RN 70727-99-0 HCA
CN Iron alloy, base, Fe,Al,Cr,Y (Fecralloy) (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

Fe	70	-	81	7439-89-6
Cr	15	-	22	7440-47-3
Al	4	-	5.2	7429-90-5
Y	0	-	0.4	7440-65-5

IC C01B003-40; C01B003-16; C01B003-32; C01B003-58
CC 67-1 (Catalysis and Reaction Kinetics)
ST hydrogen prodn **catalyst**; carbon monoxide steam reaction **catalyst**; methanol prodn **catalyst**; methanation **catalyst**
IT Rare earth oxides
(**catalysts**, for processes involving carbon monoxide and hydrogen)
IT **Catalysts** and **Catalysis**
(for processes involving carbon monoxide and hydrogen)
IT Methanation **catalysts**
(oxides, on metal or alloy supports)
IT 11109-50-5 11109-52-7 12605-70-8
(**catalysts** support, for processes involving carbon monoxide and hydrogen)
IT 60616-02-6
(**catalysts** support, for processes involving carbon monoxide and nitrogen)
IT **70727-99-0**
(**catalysts** support, for processes involving, carbon monoxide and hydrogen)
IT 1306-38-3, uses and miscellaneous 1307-96-6, uses and miscellaneous 1313-27-5, uses and miscellaneous 1313-99-1, uses and miscellaneous 1314-13-2, uses and miscellaneous 1314-23-4, uses and miscellaneous 1317-38-0, uses and miscellaneous 1332-37-2, uses and miscellaneous 1344-28-1, uses and miscellaneous 7440-50-8, uses and miscellaneous 11113-75-0 11118-57-3 12136-45-7, uses and miscellaneous 12612-50-9 12627-71-3 12653-56-4 13463-67-7, uses and miscellaneous
(**catalysts**, for processes involving carbon monoxide and hydrogen)
IT 67-56-1P, preparation
(prepn. of, **catalysts** for)
IT 1333-74-0P, preparation
(prodn. of, **catalysts** for conversion of carbon monoxide and steam in)
IT 7732-18-5, vapor
(reaction of, with carbon monoxide, **catalysts** for)

L68 ANSWER 16 OF 16 HCA COPYRIGHT 2006 ACS on STN
92:200774 Rankine engine with **catalytic** combustion device.
Enga, Bernard Edvard (Johnson, Matthey and Co. Ltd., UK). Fr.

Demande FR 2425539 **19791207**, 12 pp. (French). CODEN: FRXXBL. APPLICATION: FR 1979-12136 19790508.

AB A fuel-injected Rankine engine has a **catalytic** combustor where the fuel is burned without a flame and where a pressure drop of ≤10% is produced and a heat-transfer means for heating the working fluid using the hot combustion gases. A suitable monolithic **catalyst** has a pore d. of 62 pores/cm2, a pore size of 0.05 mm, 91-2% open surface, and a pressure drop of 4%, and is composed of an Fe-Cr-Al-Y alloy support coated with O-contg. compds. of Al and B and loaded with 5.3 g Pt/dm3. The **catalyst** allows rapid movement of the fuel-air mixt., is heat- and oxidn.-resistant, and is not brittle. Other known oxidn. **catalysts** are suitable when an O-contg. precoating is used to reduce fragility. Thus, a portion of the butane [106-97-8]-N fuel was combusted to preheat air to 38° and the remaining fuel was injected into the heated air upstream from the **catalyst**; the exhaust gas, at 625°, contained CO 7, NOx 0, and hydrocarbons 16 ppm. The exhaust gas leaving the boiler was at 80°. Part of the steam generated was used to run a double-effect steam engine rated at 2235 W.

IT **12606-73-4**
(supports, for platinum combustion **catalysts** in fuel-injected Rankine engine)

RN 12606-73-4 HCA

CN Aluminum alloy, nonbase, Al,Cr,Fe,Y (9CI) (CA INDEX NAME)

Component	Component Registry Number
Al	7429-90-5
Cr	7440-47-3
Fe	7439-89-6
Y	7440-65-5

IC F01K021-00; B01J023-86

CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59, 67

ST Rankine engine **catalytic** combustion device; platinum **catalyst** combustion Rankine engine; butane combustion Rankine engine; exhaust gas Rankine engine; alloy support combustion **catalyst**

IT Engines
(Rankine, with **catalytic** combustion device for steam generation)

IT Exhaust gases
(compn. of, from fuel-injected Rankine engine with **catalytic** combustion)

IT Combustion **catalysts**

(platinum, **porous supports** for, in fuel-injected Rankine engine)
IT 7440-06-4, uses and miscellaneous
(**catalysts**, **porous** alloy-**supported**, for combustion in fuel-injected Rankine engine)
IT 106-97-8, reactions
(combustion of, in fuel-injected Rankine engine, **catalysts** for)
IT 1303-86-2, uses and miscellaneous 1344-28-1, uses and miscellaneous
(platinum **catalyst** supports coated by, for combustion in fuel-injected Rankine engine)
IT **12606-73-4**
(supports, for platinum combustion **catalysts** in fuel-injected Rankine engine)

=> display history full l77-

FILE 'HCA' ENTERED AT 11:45:48 ON 14 JUL 2006
L77 78803 SEA (HIGH? OR INCREAS? OR LARG? OR AUGMENT? OR ELEVAT? OR BIG OR GREAT)(2A)(PORE# OR PORO? OR PERMEA?)
L78 6012 SEA L77 AND L1
L79 1 SEA L78 AND L17
L80 4 SEA L78 AND L19
L81 2 SEA (L79 OR L80) NOT L68
L82 2 SEA L81 AND 1840-2001/PY,PRY

=> d l82 1-2 cbib abs hitstr hitind

L82 ANSWER 1 OF 2 HCA COPYRIGHT 2006 ACS on STN
114:65750 Material properties and processing in the production of fuel cell components. I. Hydrogen anodes from Raney nickel for lightweight alkaline fuel cells. Jenseit, W.; Khalil, A.; Wendt, H. (Inst. Chem. Technol., TH Darmstadt, Darmstadt, 6100, Germany). Journal of Applied Electrochemistry, 20(6), 893-900 (English) 1990. CODEN: JAELBJ. ISSN: 0021-891X.
AB Anodes for H-O alk. fuel cells were fabricated using a Raney Ni **catalyst**, mixed with Cu2O, aq. PTFE as binder. The mixt. was deposited on a Ni net by simultaneous cold rolling and evapn. of solvents which led to efficient penetration of fibers and binder. The Raney Ni **catalyst** was prepd. by leaching of precursor Al-Ni alloys with aq. KOH (30%), forming a **highly porous** Ni sponge. The

electrodes require cathodic conditioning which involves Cu2O redn., forming a conductive Cu deposit. The anodes had a c.d. of 400 mA/cm2 at 80° under H pressure of 1.02 bar. After 5000 h at 50°, the c.d. was 100 mA/cm2.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67

ST Raney nickel **catalyst** anode; fuel cell anode hydrogen; copper Raney nickel PTFE anode; polytetrafluoroethylene binder nickel anode

IT Oxidation **catalysts**
(Raney nickel, for hydrogen, in fuel cell anode)

IT **Metallic** fibers
(nickel **felt**, anode matrix, nickel **catalyst** -copper-PTFE paste on)

IT Anodes
(fuel-cell, **catalytic**, Raney nickel-copper-PTFE, for hydrogen prepn. and performance of)

IT 7440-50-8P, Copper, uses and miscellaneous
(anodes contg. nickel **catalyst** and, prepn. and performance of)

IT 1333-74-0, Hydrogen, uses and miscellaneous
(anodes for, nickel **catalyst**-PTFE-copper, prepn. and performance of)

IT 7440-02-0P, Nickel, uses and miscellaneous
(**catalysts**, anode contg., prepn. and performance of, for alk. fuel cells)

L82 ANSWER 2 OF 2 HCA COPYRIGHT 2006 ACS on STN

81:94942 Porous **metal** fiber **felts**. Schloemer, Josef; Hof, Georg (Wuerttenbergische Metallwarenfabrik). U.S. US 3811976 **19740521**, 3 pp. (English). CODEN: USXXAM. APPLICATION: US 1972-257894 19720530.

AB In the manuf. of porous metal-fiber materials, 18-8 Cr-Ni stainless steel fibers, 0.1-0.2 mm in diam. and 5 mm long, are charged into a drum having 1-mm openings and 30% free space. The drum is rotated at 50 rpm and moved back and forth over a carrier sheet. New fibers are continuously fed into the drum to keep it full. After 4 fiber layers are applied, a soln. of acrylic resin copolymers is sprayed on. After obtaining a mat thickness of 5 mm, the distribution is continued, the solvent is removed by vaporizing in a drying chamber. The mat is conveyed to a 2nd support plate coated with a plating agent and placed in a sintering furnace for 2 hr at 1250°. The mat has a silvery white appearance, an ultimate tensile strength of 50 kg/cm2, and a pore vol. of 85%. The materials are used for heat exchangers, battery electrodes, and **catalyst** units because of their large surface, and in filter plates and sound-damping materials because of their **high porosity**.

IC B32B
INCL 156062800
CC 55-4 (Ferrous Metals and Alloys)
ST porous metal fiber product; stainless steel fiber product; heat exchanger stainless steel fiber; battery electrode stainless steel fiber; **catalyst** unit stainless steel fiber; filter plate stainless steel fiber; sound damping stainless steel fiber
IT **Catalysts** and **Catalysis**
Electrodes
Filters and Filtration apparatus
Heat-exchange apparatus
Sound insulators
(**metal** fiber **felts** for)

=> d l69 1-11 cbib abs hitstr hitind

L69 ANSWER 1 OF 11 HCA COPYRIGHT 2006 ACS on STN
138:191552 Manufacture of foamed metal composite for secondary batteries, **catalyst** carrier, or filter. Hui, Zhilin; Yu, Chengzhou; Zhang, Jinghuai; Fang, Zhengqiu; Huang, Songtao; Che, Xiaokui; Lai, Weihua (Beijing General Inst. of Nonferrous Metals, Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1355097 A 20020626, 6 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 2000-133631 20001130.
AB The composite is composed of 3-95% foamed metal A and bal. of compounding metal B. The process comprises electroplating metal A on a foam material, heat treating, electroplating metal B on the surface of metal A, and heat treating. Preferably, metal A is Ni, Fe, Cu, Pb, or Zn; metal B is Cr, Ni, or Ag; and the foam material is polyamide plastic foam, woven cloth, nonwoven cloth, or fiber felt. The obtained composite has a porosity of >95%, a pore diam. of 200-500 μm, and a thickness of 1.5-5 mm;.
IC ICM B32B015-01
ICS B32B015-02; B32B005-22; C22C001-08
CC 56-4 (Nonferrous Metals and Alloys)
Section cross-reference(s): 38, 76
ST foamed metal composite secondary battery **catalyst** carrier filter; polyamide plastic foam cloth **felt** preform foamed **metal** composite; nickel iron copper lead zinc foamed metal composite; chromium silver foamed metal composite
IT Felts
(fiber felt, preform; for manuf. of foamed metal composite for secondary batteries, **catalyst** carrier, or filter)
IT Electrodeposition
Heat treatment
(in manuf. of foamed metal composite for secondary batteries,

catalyst carrier, or filter)
IT Catalyst supports
Cellular materials
Composites
Filters
Secondary batteries
(manuf. of foamed metal composite for secondary batteries, catalyst carrier, or filter)
IT Nonwoven fabrics
(preform; for manuf. of foamed metal composite for secondary batteries, catalyst carrier, or filter)
IT Plastic foams
Polyamides, uses
(preform; for manuf. of foamed metal composite for secondary batteries, catalyst carrier, or filter)
IT Textiles
(woven cloth, preform; for manuf. of foamed metal composite for secondary batteries, catalyst carrier, or filter)
IT 7440-22-4P, Silver, preparation 7440-47-3P, Chromium, preparation
(compounding metal; for manuf. of foamed metal composite for secondary batteries, catalyst carrier, or filter)
IT 7439-89-6P, Iron, preparation 7439-92-1P, Lead, preparation
7440-02-0P, Nickel, preparation 7440-50-8P, Copper, preparation
7440-66-6P, Zinc, preparation
(foamed metal; for manuf. of foamed metal composite for secondary batteries, catalyst carrier, or filter)

L69 ANSWER 2 OF 11 HCA COPYRIGHT 2006 ACS on STN
136:283537 Diesel engine particulate filters having deodorization function. Suzuki, Seigo (Isuzu Ceramics Research Institute, Japan). Jpn. Kokai Tokkyo Koho JP 2002097924 A2 20020405, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-294707 20000927.
AB The particulate filter is constituted by a filter and an deodorizing member at the downflow of the filter; wherein the filter is constituted by a (several layered) laminate of rough felt and dense felt both are made of inorg. or metallic fibers (placing the rough felt at the upflow side), and a heat-resistant metal net on ≥1 plane of the laminate. The particulate filter can remove both fine and large particles, and can be regenerated by heating the metal net by electrification.
IC ICM F01N003-02
ICS F01N003-02; A61L009-00; A61L009-01; B01D039-14; B01D039-20; B01D046-52; B01D053-86; B01D053-94; F01N003-08; F01N003-24
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 47, 56, 57
IT Metallic fibers
(felts made of; in diesel engine particulate filters

equipped with deodorant members)
IT 7440-06-4, Platinum, uses
(**catalyst** in deodorants; in diesel engine particulate filters equipped with deodorant members)

L69 ANSWER 3 OF 11 HCA COPYRIGHT 2006 ACS on STN
134:165234 **Catalytic** partial oxidation processes and **catalysts** with diffusion barrier coating. Barnes, John J.; Dindi, Hasan; Manogue, William (Conoco Inc., USA). PCT Int. Appl. WO 2001009033 A1 **20010208**, 17 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US20626 20000728. PRIORITY: US 1999-PV146636 19990730; US 2000-626894 20000727.

AB A process for the prodn. of synthesis gas from light hydrocarbons (e.g., CH4) includes the net **catalytic** partial oxidn. of a hydrocarbon feedstock by contacting a feed stream comprising the hydrocarbon feedstock and an O2-contg. gas with a **catalyst** in a reaction zone maintained at conversion-promoting conditions effective to produce an effluent stream of H2 and CO in a molar ratio of about 2:1. A preferred **catalyst** used in the process includes ≥1 **catalytically** active metal supported on a **catalyst** support comprising an Al-contg., oxide-dispersion-strengthened, alloy that was treated to provide a protective oxide layer between the support and the **catalytically** active metal.

IT **7440-18-8**, **Ruthenium**, uses **133328-32-2**, PM2000
(reforming **catalyst** for partial oxidn. in synthesis gas manufg.)
RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

RN 133328-32-2 HCA
CN Iron alloy, base, Fe,Al,Cr,Ti,Y2O3 (PM2000) (9CI) (CA INDEX NAME)

Component Component Component

	Percent	Registry Number
Fe	74	7439-89-6
Cr	20	7440-47-3
Al	5.5	7429-90-5
Ti	0.5	7440-32-6
Y2O3	0.5	1314-36-9

IC ICM C01B003-40
CC 49-1 (Industrial Inorganic Chemicals)
Section cross-reference(s): 51
ST synthesis gas manuf **catalytic** partial oxidn
IT Reforming **catalysts**
(for partial oxidn. in synthesis gas manufg.)
IT Synthesis gas manufacturing
(partial oxidn.; on **catalyst** with diffusion barrier coating)
IT 7439-88-5, Iridium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses **7440-18-8**, **Ruthenium**, uses 133328-32-2, PM2000
(reforming **catalyst** for partial oxidn. in synthesis gas manufg.)

L69 ANSWER 4 OF 11 HCA COPYRIGHT 2006 ACS on STN
130:99769 Composite material three-way **catalyst** for exhaust gas, a **catalytic** converter, and method for its fabrication. Barge, Jean; Pouderoux, Patrick Guy; Bonino, Jean Pierre; Rousset, Abel (ECIA Equipements et Composants pour l'Industrie Automobile, Fr.). Fr. Demande FR 2763259 A1 **19981120**, 63 pp. (French). CODEN: FRXXBL. APPLICATION: FR 1997-6063 19970516.
AB The three-way **catalyst** comprises a metallic matrix coated with a very thin layer of **catalytic** materials embedded homogeneously.
IT **7440-18-8**, **Ruthenium**, uses **52861-00-4**
(composite material three-way **catalyst** for exhaust gas, a **catalytic** converter, and method for its fabrication)
RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

RN 52861-00-4 HCA
CN Iron alloy, base, Fe,Al,Cr,Y (9CI) (CA INDEX NAME)

Component	Component Registry Number
Fe	7439-89-6
Al	7429-90-5
Cr	7440-47-3
Y	7440-65-5

IC ICM B01J035-00
ICS B01J023-38; B01J023-00; B01J023-75; B01J032-00; C25D005-26; C25D005-28; C25D005-36; C25D005-38; C25D015-00; C25D009-04; C23C018-16; B01D053-94; F01N003-20; F01N003-28
ICI B01J023-00, B01J103-48, B01J103-62; B01J023-75, B01J103-20
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 67
ST three way **catalyst** exhaust gas
IT Exhaust gases (engine)
Spinel-type crystals
(composite material three-way **catalyst** for exhaust gas, a **catalytic** converter, and method for its fabrication)
IT **Catalysts**
(three-way; composite material three-way **catalyst** for exhaust gas, a **catalytic** converter, and method for its fabrication)
IT Cadmium alloy
Chromium alloy
Cobalt alloy
Copper alloy
Iron alloy
Molybdenum alloy
Nickel alloy
Platinum alloy
Rhodium alloy
Ruthenium alloy
Silver alloy
Titanium alloy
Tungsten alloy
Vanadium alloy
Zinc alloy
(composite material three-way **catalyst** for exhaust gas, a **catalytic** converter, and method for its fabrication)
IT 1308-06-1, Cobalt oxide (Co3O4) 7439-89-6, Iron, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses **7440-18-8**, **Ruthenium**, uses 7440-22-4, Silver, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-43-9, Cadmium, uses 7440-47-3, Chromium, uses 7440-48-4,

Cobalt, uses 7440-50-8, Copper, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 11101-78-3 12187-36-9, Cobalt zinc oxide (Co2ZnO4) 12194-71-7, Perovskite 12526-56-6, Chromium cobalt oxide (CrCo2O4) 12597-68-1, Stainless steel, uses **52861-00-4**
(composite material three-way **catalyst** for exhaust gas, a **catalytic** converter, and method for its fabrication)

L69 ANSWER 5 OF 11 HCA COPYRIGHT 2006 ACS on STN
121:262487 Manufacture of **catalytic** converter supports using metal fibers for automotive exhaust gas treatment. Yanagisawa, Akira; Okano, Teruo; Kanamori, Yoshimichi (Nibex Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 06182226 A2 **19940705** Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1991-132813 19910604.
AB The **catalytic** converter support is manufd. from heat-resistant metal fiber cloth or felt by loading active **catalysts** on the metal fiber, needle punching to form felt shape, pressing and then calcining the shaped support. Optionally, the metal fiber can be mixed with ceramic fiber and extruding the form fiber bundles.
IC ICM B01J035-06
ICS B01D053-36
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST automotive exhaust gas **catalytic** converter; steel fiber felt converter support
IT Exhaust gases
(**catalytic** converter for treatment of, metal fibers-derived honeycomb support for)
IT Reactors
(**catalytic**, automotive; metal fibers-derived honeycomb support for)
IT 11100-60-0, Chrome steel, processes 12597-68-1, Stainless steel, processes
(fiber felts; manuf. of **catalytic** converter supports using metal fibers for automotive exhaust gas treatment)
IT 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-57-5, Gold, uses
(**metal** fiber **felts** loaded with; manuf. of **catalytic** converter supports using metal fibers for automotive exhaust gas treatment)

L69 ANSWER 6 OF 11 HCA COPYRIGHT 2006 ACS on STN
114:65750 Material properties and processing in the production of fuel cell components. I. Hydrogen anodes from Raney nickel for lightweight alkaline fuel cells. Jenseit, W.; Khalil, A.; Wendt, H. (Inst. Chem. Technol., TH Darmstadt, Darmstadt, 6100, Germany).

Journal of Applied Electrochemistry, 20(6), 893-900 (English) 1990. CODEN: JAELBJ. ISSN: 0021-891X.

AB Anodes for H-O alk. fuel cells were fabricated using a Raney Ni **catalyst**, mixed with Cu2O, aq. PTFE as binder. The mixt. was deposited on a Ni net by simultaneous cold rolling and evapn. of solvents which led to efficient penetration of fibers and binder. The Raney Ni **catalyst** was prepd. by leaching of precursor Al-Ni alloys with aq. KOH (30%), forming a highly porous Ni sponge. The electrodes require cathodic conditioning which involves Cu2O redn., forming a conductive Cu deposit. The anodes had a c.d. of 400 mA/cm2 at 80° under H pressure of 1.02 bar. After 5000 h at 50°, the c.d. was 100 mA/cm2.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67

ST Raney nickel **catalyst** anode; fuel cell anode hydrogen; copper Raney nickel PTFE anode; polytetrafluoroethylene binder nickel anode

IT Oxidation **catalysts**
(Raney nickel, for hydrogen, in fuel cell anode)

IT **Metallic** fibers
(nickel **felt**, anode matrix, nickel **catalyst** -copper-PTFE paste on)

IT Anodes
(fuel-cell, **catalytic**, Raney nickel-copper-PTFE, for hydrogen prepn. and performance of)

IT 7440-50-8P, Copper, uses and miscellaneous
(anodes contg. nickel **catalyst** and, prepn. and performance of)

IT 1333-74-0, Hydrogen, uses and miscellaneous
(anodes for, nickel **catalyst**-PTFE-copper, prepn. and performance of)

IT 7440-02-0P, Nickel, uses and miscellaneous
(**catalysts**, anode contg., prepn. and performance of, for alk. fuel cells)

L69 ANSWER 7 OF 11 HCA COPYRIGHT 2006 ACS on STN

92:217241 Boiler utilizing **catalytic** combustion. Enga, Bernard Edvard (Johnson, Matthey and Co. Ltd., UK). Brit. UK Pat. Appl. GB 2023266 **19791228**, 5 pp. (English). CODEN: BAXXDU. APPLICATION: GB 1979-14731 19790427.

AB The title boiler comprises a pilot burner and ≥2 sections each with a fuel injector, a **catalytic** combustor, and a heat exchanger, so that the temp. in each section can be maintained at 600-1250°. Combustion is completed in the final **catalytic** combustor in which the O content of the gases is reduced to 0. E.g., the **catalyst** is supported on an oxide-washcoated monolith of a Group VIII metal or Y-contg. Al-Cr-Fe

alloy, or is deposited on the aluminized heat-exchanger coolant pipes.

IT 7440-18-8, uses and miscellaneous
(catalysts and supports, for combustion, boilers contg.)
RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IT 65154-70-3 73830-68-9
(supports, for combustion catalysts, boilers contg.)
RN 65154-70-3 HCA
CN Iron alloy, base, Fe 65-99,Cr 0-20,Al 0.5-12,Y 0.1-3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	65 - 99	7439-89-6
Cr	0 - 20	7440-47-3
Al	0.5 - 12	7429-90-5
Y	0.1 - 3	7440-65-5

RN 73830-68-9 HCA
CN Chromium alloy, base, Cr 20-95,Fe 0-79,Al 0.5-4,Y 0.5-3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Cr	20 - 95	7440-47-3
Fe	0 - 79	7439-89-6
Al	0.5 - 4	7429-90-5
Y	0.5 - 3	7440-65-5

IC F22B031-04; F23C011-00
CC 47-3 (Apparatus and Plant Equipment)
Section cross-reference(s): 67
ST boiler catalytic combustor; support combustion catalyst boiler
IT Group VIII elements
(catalysts and supports, for combustion, boilers contg.)

IT Transition metals, uses and miscellaneous
(**catalysts**, for combustion, boilers contg.)
IT Combustion **catalysts**
(metallic, boilers contg.)
IT Boilers
(with **catalytic** combustors)
IT Combustion
(**catalytic**, of fuels, boilers for)
IT 7439-88-5, uses and miscellaneous 7440-05-3, uses and miscellaneous 7440-06-4, uses and miscellaneous 7440-16-6, uses and miscellaneous **7440-18-8**, uses and miscellaneous
(**catalysts** and supports, for combustion, boilers contg.)
IT 7440-22-4, uses and miscellaneous 7440-57-5, uses and miscellaneous
(**catalysts**, for combustion, boilers contg.)
IT **65154-70-3 73830-68-9** 73830-69-0
(supports, for combustion **catalysts**, boilers contg.)

L69 ANSWER 8 OF 11 HCA COPYRIGHT 2006 ACS on STN
81:94942 Porous **metal** fiber **felts.** Schloemer, Josef; Hof, Georg (Wuerttenbergische Metallwarenfabrik). U.S. US 3811976 **19740521**, 3 pp. (English). CODEN: USXXAM. APPLICATION: US 1972-257894 19720530.
AB In the manuf. of porous metal-fiber materials, 18-8 Cr-Ni stainless steel fibers, 0.1-0.2 mm in diam. and 5 mm long, are charged into a drum having 1-mm openings and 30% free space. The drum is rotated at 50 rpm and moved back and forth over a carrier sheet. New fibers are continuously fed into the drum to keep it full. After 4 fiber layers are applied, a soln. of acrylic resin copolymers is sprayed on. After obtaining a mat thickness of 5 mm, the distribution is continued, the solvent is removed by vaporizing in a drying chamber. The mat is conveyed to a 2nd support plate coated with a plating agent and placed in a sintering furnace for 2 hr at 1250°. The mat has a silvery white appearance, an ultimate tensile strength of 50 kg/cm2, and a pore vol. of 85%. The materials are used for heat exchangers, battery electrodes, and **catalyst** units because of their large surface, and in filter plates and sound-damping materials because of their high porosity.
IC B32B
INCL 156062800
CC 55-4 (Ferrous Metals and Alloys)
ST porous metal fiber product; stainless steel fiber product; heat exchanger stainless steel fiber; battery electrode stainless steel fiber; **catalyst** unit stainless steel fiber; filter plate stainless steel fiber; sound damping stainless steel fiber
IT **Catalysts** and **Catalysis**

Electrodes
Filters and Filtration apparatus
Heat-exchange apparatus
Sound insulators
(**metal** fiber **felts** for)

L69 ANSWER 9 OF 11 HCA COPYRIGHT 2006 ACS on STN
78:139536 Porous plate made of metal fibers. Kuniyasu, Yoshihiro; Matsumoto, Akio; Isobe, Eiji; Honda, Hironobu (Mitsui Mining and Smelting Co., Ltd.). U.S. US 3713787 19730130, 5 pp. (English). CODEN: USXXAM. APPLICATION: US 1970-91827 19701123.

AB Porous plates, composed of fibers .apprx.50-100μ diam. of Pb, Zn, or Cu, or their alloys, are interlocked to a felt-like mass having <60% overall theoretical d. The plates are strengthened without a contaminating binder, by pressing between mold faces, at least 1 of which has raised intersecting ridges outlining a pattern such as squares. This pattern is impressed on the fiber felt at a suitable pressure and temp. and causes sintering of the fibers where the ridges compacted them to >70% of the solid d., while the remaining felt is unsintered. The plate is used for filtering, supporting a **catalyst**, deadening sound, or conducting elec. current as an electrode in a battery. The intersecting dense strips crossing 1 or both faces of the porous felt improve bending and tensile strengths. Pb fibers are adequately compacted at 0.07-0.12 ton/cm2 and 100-150°; Zn at 0.1-0.25 ton/cm2 and 200-250°; and Cu at 0.7-1.5 and ton/cm2 370-400°.

IC B22F
INCL 029182200
CC 56-3 (Nonferrous Metals and Alloys)
Section cross-reference(s): 47
ST lead fiber plate prepn; zinc fiber plate prepn; copper fiber plate prepn; sound deadening **metal felt**; **catalyst** support **metal felt**; battery electrode **metal felt**
IT **Catalysts** and **Catalysis**
(supports, metal fiber, by hot pressing selective design)

L69 ANSWER 10 OF 11 HCA COPYRIGHT 2006 ACS on STN
75:131207 **Catalytic** oxidation of ammonia. Gillespie, George R. (Engelhard Minerals and Chemicals Corp.). Ger. Offen. DE 2101188 19710722, 30 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1971-2101188 19710112.

AB In oxidn. of NH3 at 650-1000°, and pressures up to 8-10 kg/cm2, Pt **catalyst**, which is usually formed into a pad with 10-50 screens, 40-150 cm diam., 0.12 mm aperture, and 76 μ wire thickness, and used at 62 g/0.9 ton/day capacity, is partially (1/3 to 2/3) replaced by corrosion resistant steel screen of similar pressure drop

characteristics, and without reducing the conversion efficiency, but reducing the amt. of volatilized Pt by 25-30%, the Pt being deposited on the stainless steel. Inconel, Nichrome, and other Ni-Cr alloys, which are corrosion resistant at high temps., are used as screens, **metal** foam, or **felt.** These screens on their own corrode rapidly under reactor conditions. For example, in an exptl. reactor, 10 screens Pt-10% Rh with 0.8 in. pressure drop, had a conversion efficiency 89.4%; 20 screens Pt-10% Rh 1.55 in. pressure drop, 95.9% efficiency; 4 screens Pt-Rh + 0.225 in. Inconel pad, 3.6 in. pressure drop, 72.3% efficiency; 10 screens Pt-Rh + 0.17 in. Inconel, 1.4 in. pressure drop, 94.5% efficiency. In another example in 60 ton/day HNO3 plant, with 3.75 kg Pt-Rh gauze (48 screens), with 60% replacement by Nichrome cushion 0.2-0.3 in. thick, with same pressure drop as Pt-gauze, the conversion was 95.5 and 94.7%, acid strength 55.0, and 55.5% HNO3, production 54 and 54.6 tons/day, Pt loss 20.2 and 15.3 g/day.

IC C01B
CC 49 (Industrial Inorganic Chemicals)
ST platinum **catalyst** oxidn ammonia; nitric acid prodn **catalyst**
IT Rhodium alloys, containing
(platinum-, oxidation **catalysts**, for ammonia)
IT Oxidation **catalysts**
(platinum-rhodium alloys, for ammonia in nitrogen oxide manuf.)
IT Platinum alloys, base
(rhodium-, oxidation **catalysts**, for ammonia)
IT Nitrogen oxide
(from ammonia, platinum-rhodium alloy oxidation **catalysts** for)
IT 12605-70-8, Nichrome 12606-02-9, Inconel
(oxidation **catalysts**, for ammonia in nitrogen oxide manuf.)
IT 7664-41-7, reactions
(oxidation of, platinum-rhodium alloy **catalysts** for)

L69 ANSWER 11 OF 11 HCA COPYRIGHT 2006 ACS on STN
72:122878 Elastic impregnated asbestos felts for gaskets or filters. (Brown, Boveri und Cie. A.-G.). Fr. FR 1564946 **19690425**, 2 pp. (French). CODEN: FRXXAK. PRIORITY: DE 19670318.

AB Asbestos felt is impregnated with a metal salt soln. and dried. The salt is then decompd. by heating in an oxidizing atm. to metal oxide, or in a reducing or neutral atm. to metal. The product, with or without powdering, is then molded to desired shapes and sintered under uniform or nonuniform pressure to give gas-permeable (lower pressure) or gas-impermeable (higher pressure) products. With disk or cylinder shapes, the periphery may be impermeable, the interior permeable. Free metal-contg. products have elec. cond. The products

are useful as gaskets, sleeves, washers, filters and (using suitable metal salt impregnants) **catalysts**, with good chem. and thermal resistance. Thus, asbestos felt is impregnated with Mg(NO3)2 soln., dried, molded, and heated at .apprx.600° for several hr. The MgO-contg. porous, malleable product is compacted by pressure-sintering into butt-joint ring flanges for connecting two tubes, or in disk form with a central porous zone as filters.

IC C09K; F16J; H01B
CC 39 (Textiles)
IT Electric conductors
Filtering materials
Gaskets
(from asbestos elastic **felts** impregnated with **metals** and metal oxides)
IT Asbestos
(**metal**-impregnated elastic **felts** of, for electrically conductive filters and gaskets)

=> d l70 1-23 cbib abs hitstr hitind

L70 ANSWER 1 OF 23 HCA COPYRIGHT 2006 ACS on STN
141:27557 **Catalyzed** diesel particulate matter filter with improved thermal stability. Huang, Yinyan; Dang, Zhongyuan; Amiram, Bar-Ilan (USA). U.S. Pat. Appl. Publ. US 2004116285 A1 20040617, 9 pp., Cont. of U.S. Ser. No. 8,142. (English). CODEN: USXXCO. APPLICATION: US 2003-653745 20030829. PRIORITY: US 2001-2001/8142 20011113.

AB A **catalyzed** diesel particulate matter exhaust filter with improved diesel particulate matter oxidn. activity and thermal stability including a **porous** filter **substrate** for filtering the diesel particulate matter wash-coated with high surface area support alumina, titania, silica and **zirconia** promoted with one of ceria, lanthanum oxide, tungsten oxide, molybdenum oxide, tin oxide for **catalytic** materials which includes an **alk.** earth **metal** vanadate, and a precious metal.

IT **1314-23-4**, **Zirconia**, uses **7440-18-8**, **Ruthenium**, uses
(**catalyzed** diesel particulate matter filter with improved thermal stability)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IC ICM B01J023-648
INCL 502325000
CC 59-3 (Air Pollution and Industrial Hygiene)
ST **catalysis** diesel particulate matter filter improved thermal stability; diesel exhaust gas **catalytic** filter
IT Exhaust gas **catalytic** converters
Filters
(**catalyzed** diesel particulate matter filter with improved thermal stability)
IT Noble metals
(**catalyzed** diesel particulate matter filter with improved thermal stability)
IT Air pollution
(control; **catalyzed** diesel particulate matter filter with improved thermal stability)
IT Exhaust gases (engine)
(diesel; **catalyzed** diesel particulate matter filter with improved thermal stability)
IT 1302-88-1, Cordierite 1302-93-8, Mullite 1306-38-3, Ceria, uses 1312-81-8, Lanthanum oxide **1314-23-4, Zirconia**, uses 1314-35-8, Tungsten oxide, uses 1332-29-2, Tin oxide 1344-28-1, Alumina, uses 7439-95-4, Magnesium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses **7440-18-8, Ruthenium**, uses 7440-39-3, Barium, uses 7440-70-2, Calcium, uses 7631-86-9, Silica, uses 11098-99-0, Molybdenum oxide 12163-35-8, Magnesium vanadium oxide (Mg2VO4)
(**catalyzed** diesel particulate matter filter with improved thermal stability)
IT 7440-33-7, Tungsten, uses
(**catalyzed** diesel particulate matter filter with improved thermal stability)
IT 13463-67-7, Titania, uses
(tungsten-doped; **catalyzed** diesel particulate matter filter with improved thermal stability)

L70 ANSWER 2 OF 23 HCA COPYRIGHT 2006 ACS on STN

139:8455 Hydrocarbon dehydrogenation process using layered **catalyst** compositions. Rende, Dean E.; Broerman, Andrew W.; Bozzano, Andrea G.; Lawson, R. Joe; Steigleder, Karl Z.; Takayama, Masao (UOP, LLC, USA). U.S. Pat. Appl. Publ. US 2003105373 A1 20030605, 8 pp., Cont.-in-part of U.S. 6,486,370. (English). CODEN: USXXCO. APPLICATION: US 2002-281420 20021025. PRIORITY: US 2001-2001/887229 20010622.

AB A hydrocarbon dehydrogenation process is described which comprises contacting a hydrocarbon stream with a layered **catalyst** compn. under dehydrogenation conditions to give a dehydrogenated product. The layered **catalyst** compn. comprises an inner core, an outer layer bonded to the inner core, the outer layer comprises an outer refractory inorg. oxide has a thickness of 40-150 μm and has uniformly dispersed on it ≥1 platinum-group metal(s) and ≥1 promoter metal having a concn. of the platinum-group metal(s) of 0.026-0.26 g-mole of the platinum-group metal(s) on an elemental basis per kg of the outer layer, the layered compn. further has dispersed on it ≥1 modifier metal, the inner core and the outer refractory inorg. oxide being different materials, the layered compn. further has a loading of platinum-group metal(s) of 5-30 g-mole of the platinum-group metal(s) an elemental basis per m3 of the layered compn. The dehydrogenation conditions comprise a wt. of water passed to the layered compn. of <1000 ppm based on the hydrocarbon wt. passed to the layered compn.

IT **7440-18-8**, **Ruthenium**, uses
(hydrocarbon dehydrogenation process using layered **catalyst** compns. contg.)

RN 7440-18-8 HCA

CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IT **1314-23-4**, **Zirconia**, uses
(support layers; hydrocarbon dehydrogenation process using layered **catalyst** compns. contg.)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IC ICM C07C002-64

ICS C07C005-09
INCL 585444000; 585445000; 585629000; 585660000; 585661000
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 48, 67
ST hydrocarbon dehydrogenation layered **catalyst** platinum group metal
IT Aromatic hydrocarbons, preparation
(alkenyl group-substituted; hydrocarbon dehydrogenation process using layered **catalyst** compns.)
IT Aromatic hydrocarbons, reactions
(alkyl; hydrocarbon dehydrogenation process using layered **catalyst** compns.)
IT Alkenes, preparation
(branched; hydrocarbon dehydrogenation process using layered **catalyst** compns.)
IT Alkanes, reactions
(branched; hydrocarbon dehydrogenation process using layered **catalyst** compns.)
IT Alkenes, preparation
(hydrocarbon dehydrogenation process using layered **catalyst** compns.)
IT Alkanes, reactions
(hydrocarbon dehydrogenation process using layered **catalyst** compns.)
IT Hydrocarbons, reactions
(hydrocarbon dehydrogenation process using layered **catalyst** compns.)
IT Isoalkanes
(hydrocarbon dehydrogenation process using layered **catalyst** compns.)
IT **Alkali metals**, uses
Alkaline earth metals
Platinum-group metals
(hydrocarbon dehydrogenation process using layered **catalyst** compns. contg.)
IT Molecular **sieves**
(**support** layers; hydrocarbon dehydrogenation process using layered **catalyst** compns. contg.)
IT Metals, uses
Zeolites (synthetic), uses
(support layers; hydrocarbon dehydrogenation process using layered **catalyst** compns. contg.)
IT Hydrocarbons, preparation
(unsatd.; hydrocarbon dehydrogenation process using layered **catalyst** compns.)
IT 112-40-3, Dodecane 124-18-5, Decane 629-50-5, Tridecane 629-59-4, Tetradecane 1120-21-4, Undecane

(hydrocarbon dehydrogenation process using layered **catalyst** compns.)

IT 1333-74-0, Hydrogen, uses 7732-18-5, Water, uses
(hydrocarbon dehydrogenation process using layered **catalyst** compns. and)

IT 7439-88-5, Iridium, uses 7439-92-1, Lead, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses **7440-18-8, Ruthenium**, uses 7440-31-5, Tin, uses 7440-45-1, Cerium, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-66-6, Zinc, uses 7440-69-9, Bismuth, uses
(hydrocarbon dehydrogenation process using layered **catalyst** compns. contg.)

IT 409-21-2, Silicon carbide, uses 1302-88-1, Cordierite **1314-23-4, Zirconia**, uses 1344-28-1, α-Alumina, uses 13463-67-7, Titania, uses 159995-97-8, Aluminum silicon oxide
(support layers; hydrocarbon dehydrogenation process using layered **catalyst** compns. contg.)

L70 ANSWER 3 OF 23 HCA COPYRIGHT 2006 ACS on STN

138:404342 Hydrogen production from oxygenated hydrocarbons by vapor and condensed liquid-phase reforming for fuel cell use. Cortright, Randy D.; Dumesic, James A. (Wisconsin Alumni Research Foundation, USA). U.S. Pat. Appl. Publ. US 2003099593 A1 20030529, 30 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-998552 20011129.

AB Disclosed is a method of producing hydrogen from oxygenated hydrocarbon reactants, such as glycerol, glucose, or sorbitol. The method can take place in the vapor phase or in the condensed liq. phase. The method includes the steps of reacting water and a water-sol. oxygenated hydrocarbon having at least two carbon atoms, in the presence of a metal-contg. **catalyst**. The **catalyst** contains a metal selected from the group consisting of Group VIII transitional metals, alloys thereof, and mixts. thereof. The disclosed method can be run at lower temps. than those used in the conventional steam reforming of alkanes.

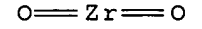
IT **7440-18-8, Ruthenium**, uses
(hydrogen prodn. from oxygenated hydrocarbons by vapor- and condensed liq.-phase reforming for fuel cell use)

RN 7440-18-8 HCA

CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

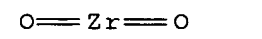
IT **1314-23-4, Zirconia**, uses
(support; hydrogen prodn. from oxygenated hydrocarbons by vapor- and condensed liq.-phase reforming for fuel cell use)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM C01B003-22
INCL 423648100
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67
IT **Catalyst** supports
Fuel cells
Reforming **catalysts**
(hydrogen prodn. from oxygenated hydrocarbons by vapor- and condensed liq.-phase reforming for fuel cell use)
IT Alditols
Alkali metal chlorides
Alkali metal hydroxides
Alkali metal salts
Alkaline earth chlorides
Alkaline earth hydroxides
Alkaline earth salts
Hexoses
Pentoses
(hydrogen prodn. from oxygenated hydrocarbons by vapor- and condensed liq.-phase reforming for fuel cell use)
IT **Alkali metal** compounds
Alkaline earth compounds
Silanes
(hydrogen prodn. from oxygenated hydrocarbons by vapor- and condensed liq.-phase reforming for fuel cell use)
IT **Porous** materials
(**nanoporous**, **support**; hydrogen prodn. from oxygenated hydrocarbons by vapor- and condensed liq.-phase reforming for fuel cell use)
IT 7439-88-5, Iridium, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses **7440-18-8**, **Ruthenium**, uses 7440-50-8, Copper, uses 7440-66-6, Zinc, uses 10043-11-5, Boron nitride, uses 12033-89-5, Silicon nitride, uses
(hydrogen prodn. from oxygenated hydrocarbons by vapor- and

condensed liq.-phase reforming for fuel cell use)
IT 50-70-4, Sorbitol, processes 50-99-7, Glucose, processes 56-81-5, Glycerol, processes 56-82-6, Glyceraldehyde 57-50-1, Sucrose, processes 107-21-1, 1,2-Ethanediol, processes 107-22-2, Ethanedione 463-79-6D, Carbonic acid, alk. earth salts 463-79-6D, Carbonic acid, **alkali metal** salts 7697-37-2D, Nitric acid, alk. earth salts 7697-37-2D, Nitric acid, **alkali metal** salts 7732-18-5, Water, processes
(hydrogen prodn. from oxygenated hydrocarbons by vapor- and condensed liq.-phase reforming for fuel cell use)
IT 1306-38-3, Ceria, uses **1314-23-4, Zirconia**, uses 1327-36-2, Aluminosilicate 1344-28-1, Alumina, uses 7440-44-0, Carbon, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses
(support; hydrogen prodn. from oxygenated hydrocarbons by vapor- and condensed liq.-phase reforming for fuel cell use)

L70 ANSWER 4 OF 23 HCA COPYRIGHT 2006 ACS on STN
138:373272 **Catalyzed** diesel particulate matter exhaust filter. Dang, Zhongyuan; Huang, Yinyan; Bar-Ilan, Amiram (Sud-Chemie Prototech Inc., USA). U.S. Pat. Appl. Publ. US 2003091481 A1 20030515, 8 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-8142 20011113.
AB A **catalyzed** diesel particulate matter exhaust filter including a **porous** filter **substrate** for filtering the diesel particulate matter impregnated with a **catalytic** material which includes an **alk.** earth **metal** vanadate and a precious metal.
IT **1314-23-4, Zirconia**, uses
(as **porous** filter **substrate**; **catalyzed** diesel exhaust particulate filter)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **7440-18-8, , Ruthenium**, uses
(**catalyzed** diesel exhaust particulate filter)
RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

IC ICM B01D053-94

ICS F01N003-10
INCL 422180000; 422171000; 422177000
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST **catalyzed** diesel exhaust particulate filter pressure drop thermal stability; magnesium vanadate platinum ceramic silicon carbide **catalytic** particle filter
IT Ceramics
(as **porous** filter **substrate**; **catalyzed** diesel exhaust particulate filter)
IT Exhaust particles (engine)
(**catalyzed** diesel exhaust particulate filter)
IT Exhaust gases (engine)
(diesel; **catalyzed** diesel exhaust particulate filter)
IT Filters
(particulate, **catalytic**; **catalyzed** diesel exhaust particulate filter)
IT 409-21-2, Silicon carbide, uses 1302-74-5, Corundum, uses 1303-86-2, Boria, uses 1309-48-4, Magnesia, uses **1314-23-4**, **Zirconia**, uses 7631-86-9, Silica, uses 12673-69-7, Potassium titanate 13463-67-7, Titania, uses 37368-09-5, Titanium-**zirconium oxide** 52337-09-4, Titania-silica 159995-97-8, Aluminum silicon oxide 174633-44-4, Silicon **zirconium oxide**
(as **porous** filter **substrate**; **catalyzed** diesel exhaust particulate filter)
IT 1344-28-1, Alumina, uses
(as **porous** filter **substrate**; may be coated with WO3, TiO2 or ZrO2; **catalyzed** diesel exhaust particulate filter)
IT 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses **7440-18-8**, , **Ruthenium**, uses 11099-11-9, Vanadium oxide 13573-13-2, Vanadate (VO31-), Magnesium (2:1) 22652-39-7, Barium vanadium oxide (BaV2O6) 37353-31-4D, Vanadate, **alk.** earth **metal** compds. 52110-03-9, Calcium Vanadate
(**catalyzed** diesel exhaust particulate filter)
IT 1302-88-1, Cordierite 1302-93-8, , Mullite
(coated with tungsten oxide, titania or **zirconia**; **catalyzed** diesel exhaust particulate filter)

L70 ANSWER 5 OF 23 HCA COPYRIGHT 2006 ACS on STN
138:275463 **Catalyst** for purification of exhaust gases and process for purification of exhaust gases. Morita, Atsushi; Okamura, Junji; Masaki, Shinyuki; Sugishima, Noboru; Kobayashi, Motonobu (Nippon Shokubai Co., Ltd., Japan). Eur. Pat. Appl. EP

1297886 A1 20030402, 37 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2002-21487 20020925. PRIORITY: JP 2001-302460 20010928; JP 2002-6712 20020115.

AB The present invention aims is a **catalyst** and process to remove CO from the combustion exhaust gases discharged from various combustion apparatuses such as boilers, gas turbines, diesel engines, and gas engines; and a process for purifn. of exhaust gases utilizing such a **catalyst**. The **catalyst** comprises: a monolithically molded type **porous** honeycomb **support** obtained by a process including the steps of extrusion-molding and then calcining materials of the support, which include a titanium-contg. oxide as the metal oxide; a **catalytic** component A supported on the support and distributed with a quant. great inclination toward surfaces of the **catalyst**, including a specific noble metal element. Any one or any combination of the following modifications may be made to the **catalyst**: a **catalytic** component B including at least one groups I to III metal element supported on the support; a **catalytic** component C including at least one element selected from the group consisting of V, W, Mo, Cu, Mn, Ni, Co, Cr, and Fe supported on the support; a compd. of at least one element selected from the group consisting of B, P, Sb, Pb, Sn, Zn, and In in the range of not more than 10 wt. % in terms of atom of the selected element relative to the entity of the **catalyst**; a sulfur compd. in the range of not more than 1 wt. % in terms of sulfur atom relative to the entity of the **catalyst**. Further disclosed is a process for purifn. of exhaust gases to remove CO therefrom, comprising contact with the above **catalyst**. In addn., NOx can also efficiently be removed and purified along with CO if there is used a process comprising the step of bringing the above exhaust gases into contact with the above **catalyst**, or if, before or after this contact step, the exhaust gases are brought into contact with a **catalyst** for removal of nitrogen oxides (deNOx **catalyst**) in the presence of a reducing agent.

IT **7440-18-8**, **Ruthenium**, uses
(component A; **catalyst** and process for removing CO and NOx from combustion exhaust gases)

RN 7440-18-8 HCA

CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IC ICM B01D053-94

CC 59-3 (Air Pollution and Industrial Hygiene)

Section cross-reference(s): 67
ST catalyst removal carbon monoxide nitrogen oxide combustion exhaust gas
IT Combustion gases
Exhaust gases (engine)
Flue gases
(catalyst and process for removing CO and NOx from combustion exhaust gases)
IT Alkali metals, uses
Alkaline earth metals
Group IIIB elements
(component B; catalyst and process for removing CO and NOx from combustion exhaust gases)
IT Exhaust gas catalytic converters
(deNOx catalysts; catalyst and process for removing CO and NOx from combustion exhaust gases)
IT 7664-41-7, Ammonia, reactions
(NOx reducing agent; catalyst and process for removing CO and NOx from combustion exhaust gases)
IT 7439-92-1, Lead, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-42-8, Boron, uses 7440-66-6, Zinc, uses 7440-74-6, Indium, uses 7723-14-0, Phosphorus, uses
(catalyst and process for removing CO and NOx from combustion exhaust gases)
IT 630-08-0, Carbon monoxide, processes 11104-93-1, Nitrogen oxide, processes
(catalyst and process for removing CO and NOx from combustion exhaust gases)
IT 11126-28-6, Titanium tungsten oxide 13463-67-7, Titanium oxide, uses 37220-25-0, Aluminum Titanium oxide 37368-09-5, Titanium zirconium oxide 52337-09-4, Silicon Titanium oxide
(catalyst support; catalyst and process for removing CO and NOx from combustion exhaust gases)
IT 7439-88-5, Iridium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-57-5, Gold, uses
(component A; catalyst and process for removing CO and NOx from combustion exhaust gases)
IT 7439-89-6, Iron, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-33-7, Tungsten, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-62-2, Vanadium, uses
(component C; catalyst and process for removing CO and NOx from combustion exhaust gases)

L70 ANSWER 6 OF 23 HCA COPYRIGHT 2006 ACS on STN

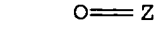
138:209091 Process for making thin film porous ceramic-metal composites for **catalysts** and gas sensors. Cairns, James Anthony; Berry, Graham James; Callon, Gary John; Smith, Robert Dermot (The University of Dundee, UK). PCT Int. Appl. WO 2003021004 A1 20030313, 33 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-GB4086 20020830. PRIORITY: GB 2001-20958 20010830; GB 2001-20961 20010830; GB 2001-20956 20010830.

AB The process discloses an application of thin film coatings of porous ceramic layer (esp. YSZ) with incorporated metal particles onto substrates. The process includes (a) contacting a substrate with a precursor soln. so as to form a coating directly on the substrate, the coating comprising precursors of ceramic (e.g., zirconium propionate, aluminum 2-Et hexanoate), stabilizing chem. moiety (e.g., yttrium 2-ethylhexanoate), and metal, and (b) thermally treating said substrate with the coating at a temp. sufficient to decomp. the precursor compds. to form a thin film of stabilized porous ceramic strongly adhered directly to the substrate, the ceramic being in a suitable cryst. form such as **zirconia** in the cubic phase, incorporating therein or thereon ≥1 metals or metal oxides. The substrate comprises (a) metal or metals, or alloys, such as Fecralloy steel, or (b) silicon, polymers, such as polyimide, and glass. Said metal is Pd, Pt, Rh, Cu, Ag, Ni, Au, and the like as well as mixts. thereof in the form of acetate, acetyl acetonate, alkyl halide, etc. The ceramic layer can be patterned by exposing to UV light through a chromium-on-quartz photomask. The obtained composites can vary greatly in structure depending on the phys. properties of the substrate, the ceramic precursor selected for the application and the post-treatment operations, and may be used in prepg. **catalysts**, gas sensors, and for depositing thin metal films and other applications.

IT **1314-23-4**, **Zirconium oxide** (**ZrO2**), processes
(porous ceramic; process for making thin film porous ceramic-metal composites for **catalysts** and gas sensors)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT 61952-34-9, Fecralloy steel
(substrate; process for making thin film porous ceramic-metal composites for catalysts and gas sensors)
RN 61952-34-9 HCA
CN Iron alloy, base, Fe,Al,Cr,Y (Fecralloy 15-4) (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	81	7439-89-6
Cr	15	7440-47-3
Al	4	7429-90-5
Y	0.3	7440-65-5

IC ICM C23C018-12
ICS B01J035-06; B01J037-08; B01J021-06; B01J037-02
CC 57-2 (Ceramics)
Section cross-reference(s): 56, 67
ST porous ceramic zirconia alumina palladium platinum composite film; ceramic metal composite catalyst gas sensor
IT Catalysts
Ceramic composites
Gas sensors
(porous ceramic-metal composite for; process for making thin film porous ceramic-metal composites for catalysts and gas sensors)
IT Ceramics
(porous, zirconia and alumina; process for making thin film porous ceramic-metal composites for catalysts and gas sensors)
IT Glass, processes
Polyimides, processes
(substrate; process for making thin film porous ceramic-metal composites for catalysts and gas sensors)
IT Films
(thin film porous ceramic-metal composites; process for making thin film porous ceramic-metal composites for catalysts and gas sensors)
IT 3002-63-9, Aluminum 2-ethylhexanoate 24593-34-8, Cerium 2-ethylhexanoate 25710-96-7, Zirconium propionate 103470-68-4, Yttrium 2-ethylhexanoate
(ceramic precursor; process for making thin film porous ceramic-metal composites for catalysts and gas sensors)
IT 7440-05-3, Palladium, processes 7440-06-4, Platinum, processes

7440-16-6, Rhodium, processes 7440-22-4, Silver, processes 7440-57-5, Gold, processes
(metal particles incorporated into porous ceramic layer; process for making thin film porous ceramic-metal composites for **catalysts** and gas sensors)

IT 993-02-2, Manganese(III) acetate 3375-31-3 5503-41-3, Rhodium acetate 12080-32-9, Dichloro (1,5-cyclooctadiene) platinum
(metal precursor; process for making thin film porous ceramic-metal composites for **catalysts** and gas sensors)

IT 7440-02-0, Nickel, processes 7440-50-8, Copper, processes
(nanofilm on porous ceramic, and metal particles incorporated into porous ceramic layer; process for making thin film porous ceramic-metal composites for **catalysts** and gas sensors)

IT **1314-23-4, Zirconium oxide (ZrO2)**, processes 1314-36-9, Yttrium oxide (Y2O3), processes 1344-28-1, Alumina, processes 64417-98-7, Yttrium **zirconium oxide**
(porous ceramic; process for making thin film porous ceramic-metal composites for **catalysts** and gas sensors)

IT 7440-21-3, Silicon, processes **61952-34-9**, Fecralloy steel
(substrate; process for making thin film porous ceramic-metal composites for **catalysts** and gas sensors)

L70 ANSWER 7 OF 23 HCA COPYRIGHT 2006 ACS on STN

137:386314 Hydrocarbon dehydrogenation process for the manuf. of linear alkenes using layered **catalyst** compositions containing platinum-group metals. Rende, Dean E.; Broerman, Andrew W.; Bozzano, Andrea G.; Lawson, R. Joe; Steigleder, Karl Z.; Takayama, Masao (Uop LLC, USA). U.S. US 6486370 B1 20021126, 7 pp. (English). CODEN: USXXAM. APPLICATION: US 2001-887229 20010622.

AB A dehydrogenation process using a layered **catalyst** compn. is described in which the **catalyst** compn. comprises an inner core such as alpha-alumina, and an outer layer bonded to the inner core composed of an outer refractory inorg. oxide such as gamma-alumina. The outer layer has uniformly dispersed thereon a platinum group metal such as platinum and a promoter metal such as tin. The compn. also contains a modifier metal such as lithium. The **catalyst** compn. shows improved durability and selectivity for dehydrogenating hydrocarbons (e.g., n-decane into 1-decene), esp. at dehydrogenation conditions comprising a low water concn.

IT **7440-18-8, Ruthenium**, uses
(in layered **catalyst** compns. contg. platinum-group metals for the manuf. of linear alkenes from linear alkanes in a hydrocarbon dehydrogenation process)

RN 7440-18-8 HCA

CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IT 1314-23-4, Zirconia, uses
(support; in layered catalyst compns. contg. platinum-group metals for the manuf. of linear alkenes from linear alkanes in a hydrocarbon dehydrogenation process)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IC ICM C07C005-32
ICS C07C005-327; C07C005-333
INCL 585444000; 585374000; 585624000; 585660000
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23, 48, 67
ST layered dehydrogenation catalyst alkane conversion alkene manuf; decane dehydrogenation linear decene manuf
IT Aromatic hydrocarbons, reactions
(alkyl; hydrocarbon dehydrogenation process for the manuf. of linear alkenes using layered catalyst compns. contg. platinum-group metals)
IT Alkenes, preparation
(hydrocarbon dehydrogenation process for the manuf. of linear alkenes using layered catalyst compns. contg. platinum-group metals)
IT Alkanes, reactions
(hydrocarbon dehydrogenation process for the manuf. of linear alkenes using layered catalyst compns. contg. platinum-group metals)
IT Hydrocarbons, reactions
(hydrocarbon dehydrogenation process for the manuf. of linear alkenes using layered catalyst compns. contg. platinum-group metals)
IT Isoalkanes
(hydrocarbon dehydrogenation process for the manuf. of linear alkenes using layered catalyst compns. contg. platinum-group metals)
IT Naphthenes
(hydrocarbon dehydrogenation process for the manuf. of linear alkenes using layered catalyst compns. contg. platinum-group metals)

IT **Alkali metals**, uses
Alkaline earth metals
(in layered **catalyst** compns. contg. platinum-group metals for the manuf. of linear alkenes from linear alkanes in a hydrocarbon dehydrogenation process)
IT Dehydrogenation **catalysts**
(layered **catalyst** compns. contg. platinum-group metals for the manuf. of linear alkenes from linear alkanes in a hydrocarbon dehydrogenation process)
IT Platinum-group metals
(layered **catalyst** compns. contg. platinum-group metals for the manuf. of linear alkenes from linear alkanes in a hydrocarbon dehydrogenation process)
IT Molecular **sieves**
(**supports**; in layered **catalyst** compns. contg. platinum-group metals for the manuf. of linear alkenes from linear alkanes in a hydrocarbon dehydrogenation process)
IT Zeolites (synthetic), uses
(supports; in layered **catalyst** compns. contg. platinum-group metals for the manuf. of linear alkenes from linear alkanes in a hydrocarbon dehydrogenation process)
IT Alkenes, preparation
(α-; hydrocarbon dehydrogenation process for the manuf. of linear alkenes using layered **catalyst** compns. contg. platinum-group metals)
IT 112-41-4P, 1-Dodecene 821-95-4P, 1-Undecene 872-05-9P, 1-Decene 2437-56-1P, 1-Tridecene
(hydrocarbon dehydrogenation process for the manuf. of linear alkenes using layered **catalyst** compns. contg. platinum-group metals)
IT 112-40-3, Dodecane 124-18-5, Decane 629-50-5, Tridecane 1120-21-4, Undecane
(hydrocarbon dehydrogenation process for the manuf. of linear alkenes using layered **catalyst** compns. contg. platinum-group metals)
IT 7439-88-5, Iridium, uses 7439-92-1, Lead, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses **7440-18-8**, **Ruthenium**, uses 7440-31-5, Tin, uses 7440-45-1, Cerium, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-66-6, Zinc, uses 7440-69-9, Bismuth, uses 7440-74-6, Indium, uses
(in layered **catalyst** compns. contg. platinum-group metals for the manuf. of linear alkenes from linear alkanes in a hydrocarbon dehydrogenation process)
IT 409-21-2, Silicon carbide, uses 1302-88-1, Cordierite **1314-23-4**, **Zirconia**, uses 1344-28-1, Alumina,

uses 13463-67-7, Titania, uses
(support; in layered **catalyst** compns. contg. platinum-group metals for the manuf. of linear alkenes from linear alkanes in a hydrocarbon dehydrogenation process)

L70 ANSWER 8 OF 23 HCA COPYRIGHT 2006 ACS on STN
137:328769 Niobium containing zirconium-cerium based solid solutions. Bortun, Anatoly I.; Nunan, John Gerard (Delphi Technologies, Inc., USA). U.S. US 6468941 B1 20021022, 17 pp. (English). CODEN: USXXAM. APPLICATION: US 2000-690511 20001017.

AB The present invention relates to high oxygen ion conducting/oxygen storage (OIC/OS) materials, a **catalyst** employing the OIC/OS materials, and a method for converting hydrocarbons, carbon monoxide and nitrogen oxides using the **catalyst**. Specifically the **catalyst** comprises: an OIC/OS material having about 0.5 to about 95 mol % zirconium, about 0.5 to about 40 mol % cerium, about 0.5 to about 15 mol % R, wherein R is selected from the group consisting of rare earth **metal**(s), **alk.** earth **metal**(s), and combinations comprising at least one of the foregoing, and about 0.5 to about 15 mol % niobium, based upon 100 mol % metal component in the material; precious metal; and a **porous support**; wherein said zirconium, cerium, R, niobium, precious metal and **porous support** are deposited on a substrate. The OIC/OS materials have significantly higher oxygen storage capacity than that predicted based on Ce content due to the unexpected high and facile redox activity of the added niobium. These materials are further characterized by having a tetragonal cryst. structure under oxidizing conditions (in air) up to about 1,200 °C and a cubic cryst. structure in reducing conditions (5% hydrogen) up to about 1,000 °C for 24 h. These materials comprise, based upon 100 mol % of the metal component in the material, up to about 95 mol % zirconium, up to about 50 mol % cerium, about 0.5 to about 15 mol % rare earth **metal**(s), **alk.** earth **metal**(s) or a combination thereof, and about 0.5 to about 15 mol % niobium. Data is summarized for a range of compns. having the general empirical formula ZrxCeyNbzYzO2 where x = 0.55-0.82; y = 0.08-0.25; and z = 0.025-0.15.

IT **7440-46-2**, Cesium, uses
(niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)

RN 7440-46-2 HCA
CN Cesium (8CI, 9CI) (CA INDEX NAME)

Cs

IT **7440-18-8**, **Ruthenium**, uses

(precious metal **catalyst** component; niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)

RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IC ICM B01J021-00
ICS B01J023-16
INCL 502300000
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST zirconium cerium yttrium niobium oxide three way **catalyst** exhaust; oxygen storage niobium zirconium cerium solid soln cryst structure
IT Solid solutions
(Zr-Ce; niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)
IT Crystal structure types
(cubic or tetragonal; niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)
IT Crystal structure-property relationship
Exhaust gases (engine)
(niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)
IT Alkaline earth metals
Rare earth metals, uses
(niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)
IT Hydrocarbons, processes
(niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)
IT **Catalysts**
(three-way; niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)
IT 10026-12-7, Niobium chloride nbcl5 13494-98-9, Yttrium nitrate hexahydrate 13826-66-9 74418-77-2
(**catalyst** precursor; niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)
IT 7439-91-0, Lanthanum, uses 7439-95-4, Magnesium, uses 7440-00-8, Neodymium, uses 7440-03-1, Niobium, uses 7440-10-0, Praseodymium, uses 7440-24-6, Strontium, uses **7440-46-2**, Cesium, uses 7440-65-5, Yttrium, uses 7440-67-7, Zirconium, uses

7440-70-2, Calcium, uses
(niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)

IT 1306-38-3P, Cerium oxide CeO2, uses 1313-96-8P, Niobium oxide Nb2O5 107068-45-1P, Cerium **zirconium oxide** (Ce0.2Zr0.8O2) 150703-89-2P, Niobium yttrium **zirconium oxide** 473546-59-7P, Cerium niobium yttrium **zirconium oxide** (Ce0.25Nb0.08Y0.08Zr0.6O2) 473546-60-0P, Cerium niobium yttrium **zirconium oxide** (Ce0.08Nb0.05Y0.05Zr0.82O2) 473546-61-1P, Cerium niobium yttrium **zirconium oxide** (Ce0.08Nb0.11Y0.11Zr0.7O2) 473546-62-2P, Cerium niobium yttrium **zirconium oxide** (Ce0.15Nb0.02Y0.02Zr0.8O2) 473546-63-3P, Cerium niobium yttrium **zirconium oxide** (Ce0.15Nb0.05Y0.05Zr0.75O2) 473546-64-4P, Cerium niobium yttrium **zirconium oxide** (Ce0.15Nb0.08Y0.08Zr0.7O2) 473546-65-5P, Cerium niobium yttrium **zirconium oxide** (Ce0.15Nb0.1Y0.1Zr0.65O2) 473546-66-6P, Cerium niobium yttrium **zirconium oxide** (Ce0.15Nb0.15Y0.15Zr0.55O2) 473546-67-7P, Cerium niobium yttrium **zirconium oxide** (Ce0.2Nb0.08Y0.08Zr0.65O2) 473546-68-8P, Cerium yttrium **zirconium oxide** (Ce0.2Y0.08Zr0.72O1.96) 473563-23-4P, Cerium niobium **zirconium oxide** (Ce0.2Nb0.1Zr0.7O2.05)
(niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)

IT 630-08-0, Carbon monoxide, processes 11104-93-1, Nitrogen oxide, processes
(niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)

IT 7439-88-5, Iridium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, **Ruthenium**, uses 7440-74-6, Indium, uses
(precious metal **catalyst** component; niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)

IT 7782-44-7, Oxygen, miscellaneous
(storage of; niobium contg. zirconium-cerium based solid solns. as exhaust gas three way **catalysts**)

L70 ANSWER 9 OF 23 HCA COPYRIGHT 2006 ACS on STN
136:120909 Chromium-based mixed oxides as **catalysts** for converting C1-5-hydrocarbons to syngas. Kourtakis, Kostantinos; Gaffney, Anne M.; Wang, Lin (USA). U.S. Pat. Appl. Publ. US 2002006374 A1 20020117, 30 pp., Cont.-in-part of U.S. Ser. No.

703,701. (English). CODEN: USXXCO. APPLICATION: US 2001-785384 20010216. PRIORITY: US 1999-PV163843 19991105; US 2000-2000/PV18342U 20000218; US 2000-2000/PV18357U 20000218; US 2000-2000/703701 20001101.

AB A chromium-based mixed oxide is used for the **catalytic** conversion of C1-5-hydrocarbons to carbon monoxide and hydrogen under partial oxidn. promoting conditions. The mixed oxide **catalyst** contains at least one other metal, such as Li, Na, K, Rb, Cs, Mg, Ca, Sr, Ba, Cu, Ag, Au, Zn, Cd, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Co, Ni, **Ru**, or Rh and has a structure other than perovskite. The **catalyst** can also contain magnesia, silica, titanium dioxide, tantalum oxide, **zirconia** or alumina as an oxidatively and thermally stable **porous support** in form of a three-dimensional monolith, reticulated ceramic, or ceramic foam, or for forming a xerogel or aerogel as a matrix (at least 30 wt.% of total wt.). These gels are prepd. by reacting metal C1-4-alkoxides, such as tantalum n-butoxide, titanium isopropoxide, and zirconium isopropoxide, with water at a molar ratio of 1:0.1-10. The syngas prodn. process is carried out at 700-1,000°C, 130-10,000 kPa, and a space velocity of the reaction mixt. of 50,000-50,000,000 NL/kg/h with a **catalyst** contact time of ≤ 10 ms. The reactant gas mixt. has a C:O ratio of about 2:1 and contains at least 80 vol.% of methane.

IT **1314-23-4**, **Zirconia**, uses
(support; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

IC ICM C01B031-18
ICS C01B003-26; B01J023-26

INCL 423418200

CC 51-11 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 67

ST chromium based mixed oxide **catalyst** syngas prodn methane

IT Hydrocarbons, reactions
(C1-5, conversion of; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

IT Aerogels
Xerogels
(formation of; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

IT **Alkali metal** oxides

Alkaline earth oxides
Rare earth oxides
Transition metal oxides
(mixed oxide **catalyst** contg.; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

IT Synthesis gas manufacturing
(partial oxidn.; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

IT Synthesis gas
(prodn. of; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

IT 59165-25-2, Chromium Cobalt lanthanum oxide
(**catalyst**; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

IT 11104-65-7P, Chromium copper oxide 12016-69-2P, Chromium cobalt oxide (Cr2CoO4) 12619-67-9P, Chromium magnesium oxide 12640-79-8P, Nickel tungsten oxide 12673-58-4P, Molybdenum Nickel oxide 12687-47-7P, Chromium nickel oxide 12737-27-8P, Chromium iron oxide 12771-00-5P, Copper tungsten oxide 12777-94-5P, Chromium Lanthanum oxide 13762-14-6P, Cobalt molybdenum oxide (CoMoO4) 39318-26-8P, Chromium vanadium oxide 39432-73-0P, Chromium manganese oxide 39455-56-6P, Chromium tungsten oxide 50922-29-7P, Chromium zinc oxide 51142-84-8P, Copper Molybdenum oxide 51845-82-0P, Cerium chromium oxide 56214-02-9P, Chromium samarium oxide 181790-65-8P, Chromium cobalt titanium oxide 200711-37-1P, Chromium lanthanum nickel oxide 204759-73-9P, Chromium magnesium silicon oxide 356068-71-8P, Aluminum chromium gold oxide 356068-72-9P, Chromium gold magnesium oxide 356068-74-1P, Chromium nickel yttrium oxide 356068-75-2P, Cerium chromium nickel oxide 356068-76-3P, Chromium magnesium hydroxide oxide 389964-31-2P, Chromium lanthanum lithium oxide
(**catalyst**; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

IT 74-82-8, Methane, reactions
(conversion of; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

IT 1308-38-9P, Dichromium trioxide, uses
(freeze-dried or aerogel, **catalyst**; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

IT 546-68-9, Titanium isopropoxide 2171-98-4, Zirconium isopropoxide 51094-78-1, 1-Butanol, tantalum(5+) salt
(gel formation using; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

IT 1304-28-5, Barium oxide, uses 1305-78-8, Calcium oxide, uses 1306-19-0, Cadmium oxide, uses 1308-87-8, Dysprosium oxide

1312-81-8, Lanthanum oxide 1313-59-3, Sodium oxide, uses 1313-99-1, Nickel oxide, uses 1314-11-0, Strontium oxide, uses 1314-13-2, Zinc oxide, uses 1344-70-3, Copper oxide 11104-61-3, Cobalt oxide 11113-84-1, **Ruthenium** oxide 11129-18-3, Cerium oxide 12036-32-7, Praseodymium oxide 12057-24-8, Lithium oxide, uses 12061-16-4, Erbium oxide 12064-62-9, Gadolinium oxide 12136-45-7, Potassium oxide, uses 12648-30-5, Neodymium oxide 12651-06-8, Samarium oxide 12651-43-3, Ytterbium oxide 12680-36-3, Rhodium oxide 12738-76-0, Terbium oxide 12770-85-3, Europium oxide 18088-11-4, Rubidium oxide 20281-00-9, Cesium oxide 20667-12-3, Silver oxide 39403-39-9, Gold oxide 39455-61-3, Holmium oxide 39455-67-9, Lutetium oxide 39455-81-7, Thulium oxide
(mixed oxide contg.; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

IT 1309-48-4, Magnesia, uses **1314-23-4**, **Zirconia**, uses 1344-28-1, α-Alumina, uses 7631-86-9, Silica, uses 13463-67-7, Titanium oxide, uses 59763-75-6, Tantalum oxide
(support; chromium-based mixed oxides as **catalysts** for converting C1-5 hydrocarbons to syngas)

L70 ANSWER 10 OF 23 HCA COPYRIGHT 2006 ACS on STN
135:359393 Fischer-Tropsch process and **catalysts** for the manufacture of hydrocarbons. Manzer, Leo M.; Schwarz, Stephan; Maslov, Sergej (Conoco Inc., USA). PCT Int. Appl. WO 2001085650 A1 **20011115**, 26 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US14738 20010508. PRIORITY: US 2000-PV202611 20000509.

AB A Fischer-Tropsch process for producing hydrocarbons, comprising contacting a feed stream comprising hydrogen and carbon monoxide with a **catalyst** in a reaction zone maintained at conversion-promoting conditions effective to produce an effluent stream comprising hydrocarbons, where the **catalyst** comprises cobalt, a **catalyst** support, and silver. The **catalyst** may include a promoter. A preferred **catalyst** comprises cobalt, platinum and/or **ruthenium** and/or rhenium, and silver supported on a support selected from the group consisting of Al2O3, **ZrO2**, sulfated **ZrO2**, WO3-**ZrO2**, MCM-41, H-Beta, Sylopol SiO2, AlF3, fluorided Al2O3, bentonite, zeolite, TiO2, and SiO2-Al2O3, mol. sieves, and combinations thereof.

IT **7440-09-7**, Potassium, uses **7440-17-7**, Rubidium,

uses **7440-18-8**, **Ruthenium**, uses
7440-23-5, Sodium, uses **7440-46-2**, Cesium, uses
(Fischer-Tropsch process and **catalysts** for the manuf.
of hydrocarbons)
RN 7440-09-7 HCA
CN Potassium (8CI, 9CI) (CA INDEX NAME)

K

RN 7440-17-7 HCA
CN Rubidium (8CI, 9CI) (CA INDEX NAME)

Rb

RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

RN 7440-23-5 HCA
CN Sodium (8CI, 9CI) (CA INDEX NAME)

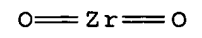
Na

RN 7440-46-2 HCA
CN Cesium (8CI, 9CI) (CA INDEX NAME)

Cs

IT **1314-23-4**, **Zirconia**, uses
(supports; Fischer-Tropsch **catalysts** for the manuf. of
hydrocarbons)
RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM C07C001-04
ICS B01J023-89
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23, 48, 67
ST hydrocarbon manuf Fischer Tropsch synthesis **catalyst**
IT Alkanes, preparation
Alkenes, preparation
Hydrocarbons, preparation
(Fischer-Tropsch process and **catalysts** for the manuf. of hydrocarbons)
IT Fischer-Tropsch **catalysts**
(cobalt and a **catalyst** support and silver for the manuf. of hydrocarbons)
IT Zeolites (synthetic), uses
(rho, supports; Fischer-Tropsch **catalysts** for the manuf. of hydrocarbons)
IT Molecular **sieves**
(**supports**; Fischer-Tropsch **catalysts** for the manuf. of hydrocarbons)
IT Bentonite, uses
H-Beta zeolites
Zeolite MCM-41
Zeolites (synthetic), uses
(supports; Fischer-Tropsch **catalysts** for the manuf. of hydrocarbons)
IT 7439-88-5, Iridium, uses 7439-91-0, Lanthanum, uses 7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses 7440-03-1, Niobium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses **7440-09-7**, Potassium, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses **7440-17-7**, Rubidium, uses **7440-18-8**, **Ruthenium**, uses 7440-20-2, Scandium, uses **7440-23-5**, Sodium, uses 7440-24-6, Strontium, uses 7440-25-7, Tantalum, uses 7440-32-6, Titanium, uses 7440-39-3, Barium, uses 7440-42-8, Boron, uses **7440-46-2**, Cesium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-65-5, Yttrium, uses 7440-67-7, Zirconium, uses 7440-70-2, Calcium, uses 7723-14-0, Phosphorus, uses
(Fischer-Tropsch process and **catalysts** for the manuf.

of hydrocarbons)
IT 630-08-0, Carbon monoxide, reactions 1333-74-0, Hydrogen, reactions
(Fischer-Tropsch process and **catalysts** for the manuf. of hydrocarbons)
IT **1314-23-4**, **Zirconia**, uses 1314-35-8, Tungsten trioxide, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 7784-18-1, Aluminum fluoride 13463-67-7, Titania, uses 159995-97-8, Aluminum silicon oxide
(supports; Fischer-Tropsch **catalysts** for the manuf. of hydrocarbons)

L70 ANSWER 11 OF 23 HCA COPYRIGHT 2006 ACS on STN
135:261477 **Catalyst** for exhaust gas treatment. Hara, Naoyuki (Toyota Motor Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2001259422 A2 **20010925**, 6 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 2000-75736 20000317.
AB The title **catalyst** comprises a monolithic **porous** inorg. oxide **support** having high sp. surface area, an alkali overcoat layer of **ZrO2**, MgO and/or MgAl2O4 on the **porous support**, NOx-occlusion materials on islet part of the alkali overcoat layer to prevent the decreasing of **catalyst** activity, and Pt-group metals on the remaining section of the **porous support surface**. The **porous** inorg. oxide **support** is preferably made of Al2O3 and/or TiO2. The **catalyst** is superior in durability in high temp. operation and NOx occlusion performance.
IT **7439-93-2**, Lithium, uses **7440-09-7**, Potassium, uses **7440-23-5**, Sodium, uses **7440-46-2**, Cesium, uses
(NOx-occlusion materials, on **porous** inorg. oxide **support**; **catalyst** for exhaust gas treatment)
RN 7439-93-2 HCA
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 7440-09-7 HCA
CN Potassium (8CI, 9CI) (CA INDEX NAME)

K

RN 7440-23-5 HCA
CN Sodium (8CI, 9CI) (CA INDEX NAME)

Na

RN 7440-46-2 HCA
CN Cesium (8CI, 9CI) (CA INDEX NAME)

Cs

IT **1314-23-4, Zirconia**, uses
(alkali overcoat layer, on **porous** inorg. oxide **support**; **catalyst** for exhaust gas treatment)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O═Zr═O

IT **7440-18-8, Ruthenium**, uses
(on **porous** inorg. oxide **support**; **catalyst** for exhaust gas treatment)
RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IC ICM B01J023-58
ICS B01D053-94; B01J020-04
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST automotive exhaust gas denitration **catalyst** platinum titania
IT Exhaust gases (engine)
(**catalyst** for automotive exhaust gas treatment)
IT Nitration **catalysts**
(retro; for exhaust gas treatment)
IT 7429-91-6, Dysprosium, uses 7439-91-0, Lanthanum, uses **7439-93-2**, Lithium, uses 7439-95-4, Magnesium, uses

7440-00-8, Neodymium, uses **7440-09-7**, Potassium, uses 7440-10-0, Praseodymium, uses 7440-20-2, Scandium, uses **7440-23-5**, Sodium, uses 7440-24-6, Strontium, uses 7440-39-3, Barium, uses 7440-41-7, Beryllium, uses 7440-45-1, Cerium, uses **7440-46-2**, Cesium, uses 7440-64-4, Ytterbium, uses 7440-65-5, Yttrium, uses 7440-70-2, Calcium, uses
(NOx-occlusion materials, on **porous** inorg. oxide **support**; **catalyst** for exhaust gas treatment)

IT 1309-48-4, Magnesium oxide, uses **1314-23-4**, **Zirconia**, uses 12068-51-8, Aluminum magnesium oxide (Al2MgO4)
(alkali overcoat layer, on **porous** inorg. oxide **support**; **catalyst** for exhaust gas treatment)

IT 11104-93-1, Nitrogen oxide, processes
(**catalyst** for exhaust gas treatment)

IT 7439-88-5, Iridium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses **7440-18-8**, **Ruthenium**, uses
(on **porous** inorg. oxide **support**; **catalyst** for exhaust gas treatment)

IT 1344-28-1, Alumina, uses 13463-67-7, Titania, uses
(**porous** inorg. oxide **support**; **catalyst** for exhaust gas treatment)

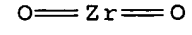
L70 ANSWER 12 OF 23 HCA COPYRIGHT 2006 ACS on STN

133:224627 **Catalyst** supports, supported **catalysts** and process for the manufacture of 1,2-epoxybutane. Roberts, Brian Dale; Monnier, John R.; Hitch, David M. (Eastman Chemical Company, USA). PCT Int. Appl. WO 2000051726 A1 **20000908**, 37 pp. DESIGNATED STATES: W: BR, CN, JP, MX; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US3321 20000209. PRIORITY: US 1999-260115 19990302.

AB Disclosed are certain **catalysts** and **catalyst** support materials and processes for the prepn. of the **catalyst** support materials and for the selective hydrogenation of 3,4-epoxy-1-butene (EpB) to 1,2,-epoxy-butane (butylene oxide -BO). The **catalyst support** materials have **micropores** filled with one or more inorg. oxides and the supported **catalysts** comprise one or more Group VIII metals deposited on the aforesaid support materials. The rhodium-contg. supported **catalysts** are esp. useful for the selective hydrogenation of EpB to BO.

IT **1314-23-4**, **Zirconia**, uses **7440-18-8**, **Ruthenium**, uses
(**catalyst** supports, supported **catalysts** and process for the manuf. of 1,2-epoxybutane)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



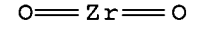
RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IC ICM B01J023-58
ICS B01J037-02; C07C045-58; C07D303-04; C07D301-00; B01J021-14
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 67
ST hydrogenation **catalyst** support inorg oxide
IT Ceramics
(**catalyst** supports, supported **catalysts** and process for the manuf. of 1,2-epoxybutane)
IT **Alkali metal** oxides
Alkaline earth oxides
Charcoal
Diatomite
Fuller's earth
Group VIII elements
Oxides (inorganic), uses
Pumice
Rare earth oxides
(**catalyst** supports, supported **catalysts** and process for the manuf. of 1,2-epoxybutane)
IT Hydrogenation **catalysts**
(support; **catalyst** supports, supported **catalysts** and process for the manuf. of 1,2-epoxybutane)
IT 409-21-2, Silicon carbide, uses 1309-48-4, Magnesia, uses **1314-23-4**, **Zirconia**, uses 1344-28-1, Aluminum oxide, uses 7439-88-5, Iridium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses **7440-18-8**, **Ruthenium**, uses 7631-86-9, Silica, uses
(**catalyst** supports, supported **catalysts** and process for the manuf. of 1,2-epoxybutane)
IT 106-88-7P, 1,2-Epoxybutane
(**catalyst** supports, supported **catalysts** and

process for the manuf. of 1,2-epoxybutane)
IT 930-22-3, 3,4-Epoxy-1-butene
(**catalyst** supports, supported **catalysts** and process for the manuf. of 1,2-epoxybutane)

L70 ANSWER 13 OF 23 HCA COPYRIGHT 2006 ACS on STN
132:68425 **Catalyst** for exhaust gas treatment. Ikeda, Yasuo; Hirayama, Hiroshi; Hayashi, Kiyotaka; Murata, Katsuyuki (Toyota Motor Corp., Japan; Kyatara Kogyo K. K.). Jpn. Kokai Tokkyo Koho JP 2000015101 A2 **20000118**, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-184648 19980630.
AB The **catalyst** has a honeycomb **substrate**; a 1st **porous** oxide **support** contg. NOx absorbing **alkali metal**, **alk.** earth, and/or rare earth compd. and noble metal **catalyst** on the honeycomb; and a 2nd Rh/**ZrO2** coating on the 1st coating at the exhaust entrance end.
IT **1314-23-4**, **Zirconia**, uses **7439-93-2**, Lithium, uses **7440-09-7**, Potassium, uses
(exhaust treatment **catalysts** contg. noble metal/oxide layers and **ruthenium/zirconia** layers on honeycomb substrates)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



RN 7439-93-2 HCA
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

RN 7440-09-7 HCA
CN Potassium (8CI, 9CI) (CA INDEX NAME)

IC ICM B01J023-58
ICS B01D053-56; B01D053-81; B01D053-94; B01J035-04
CC 59-3 (Air Pollution and Industrial Hygiene)
ST exhaust gas treatment noble metal **catalyst**; rhodium

zirconia catalyst exhaust gas treatment; nitrogen oxide removal catalyst exhaust gas

IT Exhaust gases (engine)
(exhaust treatment catalysts contg. noble metal/oxide layers and ruthenium/zirconia layers on honeycomb substrates)

IT 1302-88-1, Cordierite
(exhaust treatment catalysts contg. noble metal/oxide layers and ruthenium/zirconia layers on cordierite substrates)

IT 1314-23-4, Zirconia, uses 1317-80-2, Rutile 1344-28-1, Alumina, uses 7439-93-2, Lithium, uses 7440-06-4, Platinum, uses 7440-09-7, Potassium, uses 7440-16-6, Rhodium, uses 7440-39-3, Barium, uses 65453-23-8, Cerium zirconium oxide
(exhaust treatment catalysts contg. noble metal/oxide layers and ruthenium/zirconia layers on honeycomb substrates)

IT 11104-93-1, Nitrogen oxide, processes
(exhaust treatment catalysts contg. noble metal/oxide layers and ruthenium/zirconia layers on honeycomb substrates)

L70 ANSWER 14 OF 23 HCA COPYRIGHT 2006 ACS on STN

131:247558 Catalyst for exhaust gas purification with adsorbing nitrogen oxides. Tsuji, Shinji; Ogura, Yoshiji (Toyota Motor Corp., Japan). Jpn. Kokai Tokkyo Koho JP 11267503 A2 19991005 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-72400 19980320.

AB The catalyst comprises (1) a 1st catalyst powder having porous support loaded with noble metal (e.g., Rh), (2) NOx-adsorbing agent (e.g., alkali; alk. earth; and rare earth metal), and (3) a 2nd catalyst powder having porous support loaded with ≥1 ignoble metal selected from group of VB; VIB; VIIB; Fe; Co; Ni; Ru; Os; and Ir. The catalyst prevents noble metal from sintering and poisoning of NOx-adsorbing agent caused by SO2, and improves NO oxidn. and NOx adsorption.

IT 1314-23-4, Zirconia, processes 7440-09-7, Potassium, processes 7440-18-8, Ruthenium, processes
(catalyst for exhaust gas purifn. with adsorbing nitrogen oxides)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

RN 7440-09-7 HCA
CN Potassium (8CI, 9CI) (CA INDEX NAME)

K

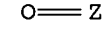
RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IC ICM B01J023-38
ICS B01D053-94; B01J021-16; B01J023-20; B01J023-24; B01J023-32; B01J023-63; B01J023-58; B01J023-76; B01J023-78
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST **catalyst** exhaust gas purifn nitrogen oxide
IT **Catalyst** supports
Exhaust gases (engine)
(**catalyst** for exhaust gas purifn. with adsorbing nitrogen oxides)
IT **Alkali metals**, processes
Alkaline earth metals
Group VB elements
Group VIB elements
Group VIIB elements
Noble metals
Rare earth metals, processes
(**catalyst** for exhaust gas purifn. with adsorbing nitrogen oxides)
IT **Catalysts**
(three-way; **catalyst** for exhaust gas purifn. with adsorbing nitrogen oxides)
IT **1314-23-4**, **Zirconia**, processes 7439-88-5, Iridium, processes 7439-89-6, Iron, processes 7439-96-5, Manganese, processes 7440-02-0, Nickel, processes 7440-04-2, Osmium, processes **7440-09-7**, Potassium, processes 7440-16-6, Rhodium, processes **7440-18-8**, **Ruthenium**, processes 7440-48-4, Cobalt, processes
(**catalyst** for exhaust gas purifn. with adsorbing

nitrogen oxides)
IT 11104-93-1, Nitrogen oxide, processes
(**catalyst** for exhaust gas purifn. with adsorbing nitrogen oxides)
IT 10102-43-9, Nitric oxide, processes
(**catalyst** for exhaust gas purifn. with adsorbing nitrogen oxides)

L70 ANSWER 15 OF 23 HCA COPYRIGHT 2006 ACS on STN
130:114323 Monoliths for vehicle exhaust gas treatment **catalysts**. Cairns, James Anthony (The University Court of the University of Dundee, UK). PCT Int. Appl. WO 9902263 A1 **19990121**, 14 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1998-GB1837 19980710. PRIORITY: GB 1997-14553 19970710.
AB The present invention provides a wire monolith for use in **catalytic** processes. The monolith typically comprises a wound sheet of knitted Fecralloy wire which can be coated with **catalyst**. The monolith is fitted easily, eliminates hotspots, is resistant to mech. damage, and requires less **catalyst** than conventional monoliths. **Catalysts** contg. monoliths of, e.g., Fecralloy steel wire, showed a performance comparable to a ceramic monolith but with a much lower concn. of **catalyst**.
IT **1314-23-4**, **Zirconia**, uses
(monoliths for vehicle exhaust gas treatment **catalysts** contg.)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **70727-99-0**
(wire; monoliths for vehicle exhaust gas treatment **catalysts** from)
RN 70727-99-0 HCA
CN Iron alloy, base, Fe,Al,Cr,Y (Fecralloy) (9CI) (CA INDEX NAME)

Component Component Component

	Percent	Registry Number
Fe	70 - 81	7439-89-6
Cr	15 - 22	7440-47-3
Al	4 - 5.2	7429-90-5
Y	0 - 0.4	7440-65-5

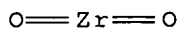
IC ICM B01J035-04
ICS B01J035-06; B01J035-00; B01D053-88; F01N003-28
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 55, 67
ST exhaust treatment **catalyst** ferritic steel wire monolith
IT Hydrocarbons, processes
(monoliths for vehicle exhaust gas treatment **catalysts** for removal of)
IT **Catalysts**
(three-way, exhaust gas; monoliths for vehicle exhaust gas treatment **catalysts**)
IT Exhaust gas **catalytic** converters
(three-way; monoliths for vehicle exhaust gas treatment **catalysts**)
IT 1306-38-3, Ceria, uses **1314-23-4**, **Zirconia**, uses
7440-05-3, Palladium, uses 7440-66-6, Zinc, uses
(monoliths for vehicle exhaust gas treatment **catalysts** contg.)
IT 630-08-0, Carbon monoxide, processes
(monoliths for vehicle exhaust gas treatment **catalysts** for removal of)
IT **70727-99-0**
(wire; monoliths for vehicle exhaust gas treatment **catalysts** from)

L70 ANSWER 16 OF 23 HCA COPYRIGHT 2006 ACS on STN
130:85284 System for exhaust gas purification. Noda, Naomi; Shibagaki, Yukinari; Mizuno, Hiroshige (NGK Insulators, Ltd., Japan). Eur. Pat. Appl. EP 886040 A2 **19981223**, 14 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1998-304679 19980612. PRIORITY: JP 1997-158946 19970616.

AB A system for exhaust gas purifn. disposed in the exhaust pipe of an internal combustion engine, includes: an adsorbent formed by loading on a first honeycomb carrier an adsorbent layer contg. an adsorbent component having a hydrocarbon adsorptivity, and a honeycomb heater formed by fixing, to a second honeycomb carrier made of an elec. heatable material and having a large no. of passages, electrodes for electrification of the carrier, the honeycomb heater being provided

downstream of the adsorbent in the flow direction of the exhaust gas emitted from the engine. In the system, the adsorbent and the honeycomb heater each have a **catalyst** component loaded thereon, the total vol. of the adsorbent and the honeycomb heater is ≥0.8 L, and the vol. of the adsorbent is ≥0.4 L. This exhaust gas purifn. system can very effectively adsorb the unburnt HC emitted from an internal combustion engine during the cold start and can decomp. hydrocarbons, CO and NOx emitted from the engine.

IT **1314-23-4, Zirconia**, uses
(system for exhaust gas purifn.)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **198083-29-3**
(system for exhaust gas purifn.)
RN 198083-29-3 HCA
CN Iron alloy, base, Fe 76,Cr 16,Al 8,Y2O3 0.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	76	7439-89-6
Cr	16	7440-47-3
Al	8	7429-90-5
Y2O3	0.5	1314-36-9

IC ICM F01N003-08
ICS B01D053-34
CC 59-3 (Air Pollution and Industrial Hygiene)
ST exhaust gas **catalytic** treatment system
IT Exhaust gas **catalytic** converters
Exhaust gases (engine)
(system for exhaust gas purifn.)
IT 1306-38-3, Ceria, uses **1314-23-4, Zirconia**, uses
1344-28-1, Alumina, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-22-4, Silver, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses
(system for exhaust gas purifn.)
IT **198083-29-3**
(system for exhaust gas purifn.)

L70 ANSWER 17 OF 23 HCA COPYRIGHT 2006 ACS on STN
127:8478 **Catalysts** for nitrogen oxide removal from flue gases and removal process. Saito, Mika; Yoshida, Kiyohide (Riken Corp., Japan). Jpn. Kokai Tokkyo Koho JP 09070537 A2 **19970318** Heisei, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-168548 19960607. PRIORITY: JP 1995-183482 19950627.

AB NOx in an O-excess flue gas is removed by redn. in the presence of 4 **catalysts**; a mixt. of the 1st and 2nd **catalysts** is placed in the inlet side of the flue gas and a mixt. of the 3rd and 4th **catalysts** is placed in the outlet side fo the flue. The 1st **catalyst** consists of a **porous** inorg. oxide **support** and 0.2-15% (as Ag) Ag or Ag compd. Ag; the 2nd **catalyst** consists of a **porous** inorg. **support** and 0.01-10% (as element) W, V, Mo, Mn, Nb, and/or Ta and their compds.; the 3rd **catalyst** consists of a **porous** inorg. oxide **support** and 0.5-30% (as element) Cu, Ni, and/or Ag, and <30% (as element) W, V, Mo, Mn, Nb, and/or Ta and their compds.; and the 4th **catalyst** consists of a **porous** inorg. oxide **support** and 0.01-5% Pt, Pd, **Ru**, Rh, Ir, and/or Au. The compds. of W, V, Mo, Mn, Nb, and/or Ta are oxides; Ag compds. are oxide, halides, sulfate, and phosphates; the Ni compds. are oxide and/or sulfate; and the Cu compds. are oxide and/or sulfate. The **porous** inorg. **support** in the 1st **catalyst** is alumina, or a mixt. of alumina and titania, silica, **zirconia**, ZnO, Sn oxide, MgO, or zeolite; and the support in the 2nd, 3rd, and 4th **catalysts** are alumina, titania, zeolite, silica, **zirconia**, or their mixts.; also, all of the support can be prepd. by coating the above oxides on a ceramic support or a metal support; optionally, pellet, granule, or honeycomb can also be used. A flue gas contg. excess O is mixed with a hydrocarbon and/or an O-contg. org. compd. and then passed through the **catalyst** at 150-600° to remove NOx.

IT **7440-17-7**, Rubidium, uses
(composite **catalysts** for nitrogen oxide removal from flue gases)

RN 7440-17-7 HCA
CN Rubidium (8CI, 9CI) (CA INDEX NAME)

Rb

IT **1314-23-4**, **Zirconia**, uses
(support; composite **catalysts** for nitrogen oxide removal from flue gases)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IC ICM B01J023-89
ICS B01D053-86; B01D053-94; B01J021-16; B01J023-68; B01J023-84; B01J021-00; B01J029-064; B01J032-00
CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST flue gas denitration **catalyst**
IT Flue gases
Reduction **catalysts**
(composite **catalysts** for nitrogen oxide removal from flue gases)
IT Zeolites (synthetic), uses
(composite **catalysts** for nitrogen oxide removal from flue gases)
IT 1313-13-9, Manganese oxide, uses 1313-96-8, Niobium oxide 1313-99-1, Nickel oxide, uses 1314-35-8, Tungsten oxide, uses 1314-61-0, Tantalum oxide 1314-62-1, Vanadium oxide, uses 1317-38-0, Copper oxide, uses 7439-88-5, Iridium, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses **7440-17-7**, Rubidium, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-33-7, Tungsten, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7758-98-7, Copper sulfate, uses 7783-90-6, Silver chloride, uses 7784-09-0, Silver phosphate 7786-81-4, Nickel sulfate 10294-26-5, Silver sulfate 11098-99-0, Molybdenum oxide 20667-12-3, Silver oxide
(composite **catalysts** for nitrogen oxide removal from flue gases)
IT 11104-93-1, Nitrogen oxide (NOx), processes
(composite **catalysts** for nitrogen oxide removal from flue gases)
IT 1309-48-4, Magnesia, uses 1314-13-2, Zinc oxide, uses **1314-23-4**, **Zirconia**, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses 21651-19-4, Tin oxide (SnO)
(support; composite **catalysts** for nitrogen oxide removal from flue gases)

L70 ANSWER 18 OF 23 HCA COPYRIGHT 2006 ACS on STN
127:8477 **Catalysts** for nitrogen oxide removal from flue gases and removal process. Saito, Mika; Yoshida, Kiyohide (Riken Corp., Japan). Jpn. Kokai Tokkyo Koho JP 09070536 A2 **19970318** Heisei, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP

1996-168532 19960607. PRIORITY: JP 1995-192558 19950705.

AB NOx in an O-excess flue gas is removed by redn. in the presence of 4 **catalysts**; a mixt. of the 1st and 2nd **catalysts** is placed in the inlet side of the flue gas and a mixt. of the 3rd and 4th **catalysts** is placed in the outlet side fo the flue. The 1st **catalyst** consists of a **porous** inorg. oxide **support** and 0.2-15% (as Ag) Ag or Ag compd. Ag; the 2nd **catalyst** consists of a **porous** inorg. **support** and 0.01-10% (as element) W, V, Mo, Mn, Nb, and/or Ta and their compds.; the 3rd **catalyst** consists of a **porous** inorg. oxide **support** and (a) 0.5-30% (as element) Cu, Ni, and/or Ag, (b) <30% (as element) W, V, Mo, Mn, Nb, and/or Ta and their compds., (c) <5% (as element) rare earth element and/or **alk. metals**; and the 4th **catalyst** consists of a **porous** inorg. oxide **support** and 0.01-5% Pt, Pd, **Ru**, Rh, Ir, and/or Au. The compds. of W, V, Mo, Mn, Nb, and/or Ta are oxides; Ag compds. are oxide, halides, sulfate, and phosphates; the Ni compds. are oxide and/or sulfate; and the Cu compds. are oxide and/or sulfate. The **porous** inorg. **support** in the 1st **catalyst** is alumina, or a mixt. of alumina and titania, silica, **zirconia**, ZnO, Sn oxide, MgO, or zeolite; and the support in the 2nd, 3rd, and 4th **catalysts** are alumina, titania, zeolite, silica, **zirconia**, or their mixts.; also, all of the support can be prepd. by coating the above oxides on a ceramic support or a metal support; optionally, pellet, granule, or honeycomb can also be used. A flue gas contg. excess O is mixed with a hydrocarbon and/or an O-contg. org. compd. and then passed through the **catalyst** at 150-600° to remove NOx.

IT **1314-23-4**, **Zirconia**, uses
(**catalyst** support; composite **catalysts** for nitrogen oxide removal from flue gases)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

IT **7440-17-7**, Rubidium, uses
(composite **catalysts** for nitrogen oxide removal from flue gases)

RN 7440-17-7 HCA

CN Rubidium (8CI, 9CI) (CA INDEX NAME)

Rb

IC ICM B01J023-652

ICS B01D053-86; B01D053-94
CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST flue gas denitration **catalyst**
IT Gasoline
(NOx reducing agent; composite **catalysts** for nitrogen oxide removal from flue gases)
IT Flue gases
Reduction **catalysts**
(composite **catalysts** for nitrogen oxide removal from flue gases)
IT **Alkali metals**, uses
Rare earth metals, uses
(composite **catalysts** for nitrogen oxide removal from flue gases)
IT Zeolites (synthetic), uses
(support; composite **catalysts** for nitrogen oxide removal from flue gases)
IT 64-17-5, Ethanol, uses 67-63-0, Isopropanol, uses 142-82-5, Heptane, uses
(NOx reducing agent; composite **catalysts** for nitrogen oxide removal from flue gases)
IT 1309-48-4, Magnesia, uses 1314-13-2, Zinc oxide, uses **1314-23-4**, **Zirconia**, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 13463-67-7, Titanium oxide (TiO2), uses 21651-19-4, Tin oxide (SnO)
(**catalyst** support; composite **catalysts** for nitrogen oxide removal from flue gases)
IT 1313-13-9, Manganese oxide, uses 1313-96-8, Niobium oxide 1313-99-1, Nickel oxide, uses 1314-35-8, Tungsten oxide, uses 1314-61-0, Tantalum oxide 1314-62-1, Vanadium oxide, uses 1317-38-0, Copper oxide, uses 7439-88-5, Iridium, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-17-7, Rubidium, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-33-7, Tungsten, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7758-98-7, Copper sulfate, uses 7783-90-6, Silver chloride, uses 7784-09-0, Silver phosphate 7786-81-4, Nickel sulfate 10294-26-5, Silver sulfate 11098-99-0, Molybdenum oxide 20667-12-3, Silver oxide
(composite **catalysts** for nitrogen oxide removal from flue gases)
IT 11104-93-1, Nitrogen oxide (NOx), processes
(composite **catalysts** for nitrogen oxide removal from flue gases)

L70 ANSWER 19 OF 23 HCA COPYRIGHT 2006 ACS on STN
126:296962 Materials and method for exhaust gas purification. Irite, Naoko; Yoshida, Kyohide (Riken Kk, Japan). Jpn. Kokai Tokkyo Koho JP 09066233 A2 **19970311** Heisei, 11 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 1996-168487 19960607. PRIORITY: JP 1995-179502 19950622.

AB The materials, for removing NOx by redn. from exhaust contg. un-burnt components and O in excess of stoichiometry for the oxidn. of the un-burnt components, include 3 **catalyst**; where the 1st **catalyst** at the upstream side of the exhaust gas flow contains 0.2-15% Ag and/or Ag compd. (calcd. as Ag) loaded on a porous inorg. oxide, the 2nd **catalyst** has compds. of W, V, Mo, Mn, Nb, and/or Ta loaded at 0.01-10% (as metal) on a porous inorg. oxide, and the 3rd **catalyst** at the downstream side of the exhaust gas flow contains a porous inorg. oxide loaded with Cu, Ni, Ag, and/or their compds. 0.5-30 (as metal), compds. of W, V, Mo, Mn, Nb, and/or Ta ≤30 (as metal), and rare earth and **alkali metals** ≤5%. The materials may have the 1st and 2nd **catalysts** mixed and the 3rd **catalyst** mixed with a 4th **catalyst** contg. a porous inorg. oxide loaded with 0.01-5% Pt, Pd, **Ru**, Rh, Ir, and/or Au. The 4th **catalyst** may also contain 0.2-10% W, V, Mo, Mn, Nb, and/or Ta. NOx is removed from exhaust gas by passing through the **catalyst** layers installed in the exhaust pipe at 150-600° by reacting with hydrocarbons and/or O contg. org. compds.

IT **7440-18-8**, **Ruthenium**, processes
(compns. of multilayer **catalysts** and method for removal of nitrogen oxide by **catalytic** redn. from hydrocarbon contg. exhaust gas)

RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IT **1314-23-4**, **Zirconia**, uses
(**porous supports** for multilayer **catalysts** for removal of nitrogen oxide from hydrocarbon contg. exhaust gas)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IC ICM B01J023-20
ICS B01D053-86; B01D053-94; B01J023-24; B01J023-34; B01J023-50; B01J023-72; B01J023-755
CC 59-3 (Air Pollution and Industrial Hygiene)
ST exhaust nitrogen oxide removal redn **catalyst**; hydrocarbon nitrogen oxide redn removal **catalyst**
IT Exhaust gases (engine)
(compns. of multilayer **catalysts** and method for removal of nitrogen oxide by **catalytic** redn. from hydrocarbon contg. exhaust gas)
IT Zeolites (synthetic), uses
(**porous supports** for multilayer **catalysts** for removal of nitrogen oxide from hydrocarbon contg. exhaust gas)
IT 1314-35-8, Tungsten oxide, uses 7439-91-0, Lanthanum, uses 7440-22-4, Silver, uses 7440-33-7, Tungsten, uses 7440-45-1, Cerium, uses 7440-50-8, Copper, uses
(compns. of multilayer **catalysts** and method for removal of nitrogen oxide by **catalytic** redn. from hydrocarbon contg. exhaust gas)
IT 7439-88-5, Iridium, processes 7439-96-5, Manganese, processes 7439-98-7, Molybdenum, processes 7440-02-0, Nickel, processes 7440-03-1, Niobium, processes 7440-05-3, Palladium, processes 7440-06-4, Platinum, processes 7440-16-6, Rhodium, processes **7440-18-8**, **Ruthenium**, processes 7440-25-7, Tantalum, processes 7440-57-5, Gold, processes 7440-62-2, Vanadium, processes 10102-43-9, Nitrogen monoxide, processes 11104-93-1, Nitrogen oxide, processes
(compns. of multilayer **catalysts** and method for removal of nitrogen oxide by **catalytic** redn. from hydrocarbon contg. exhaust gas)
IT 1302-88-1, Cordierite 1309-48-4, Magnesia, uses 1314-13-2, Zinc oxide, uses **1314-23-4**, **Zirconia**, uses 1332-29-2, Tin oxide 7631-86-9, Silica, uses 159995-97-8, Aluminum silicon oxide
(**porous supports** for multilayer **catalysts** for removal of nitrogen oxide from hydrocarbon contg. exhaust gas)
IT 13463-67-7, Titania, processes
(**porous supports** for multilayer **catalysts** for removal of nitrogen oxide from hydrocarbon contg. exhaust gas)
IT 1344-28-1, Aluminum oxide (Al2O3), uses
(γ-; **porous supports** for multilayer **catalysts** for removal of nitrogen oxide from hydrocarbon contg. exhaust gas)

L70 ANSWER 20 OF 23 HCA COPYRIGHT 2006 ACS on STN
126:121071 Acid-treated oxide layer as electrically insulating barrier coating on a metal substrate. Retallick, William B.; Westgate, Paul John; Patten, James W., Jr.; Miller, James George; Brezny, Rasto (W.R. Grace and Co.-Conn., USA). PCT Int. Appl. WO 9641037 A1 19961219, 31 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1996-US6995 19960516. PRIORITY: US 1995-477981 19950607.

AB The surface of a metal substrate (esp. a strip for elec. heating) is precoated with a refractory metal oxide, followed by calcining, impregnating the coated substrate with an acid, and firing the impregnated coating to form the elec. insulating barrier layer nominally 5-40 μm thick. The resulting barrier layer is an elec. insulator, shows good adhesion, and provides resistance to abrasion, and is suitable for elec. heated **catalytic** converters used with close spacing. The metal surface is typically precoated with aq. slurry of Al2O3, TiO2, HfO2, or **ZrO2**, calcined, and then impregnated with HNO3, HCl, or H3PO4 for hardening. The coating process can be repeated to build up the coating thickness. The strip of Ni-16 Cr-4.5 Al-2.5% Fe alloy was coated with 4 layers of aq. Al2O3 slurry, calcined at 470°, impregnated 3 times with dild. H3PO4, calcined at 460°, and then fired at 1100° for elec. insulation resistant to nominally <100 V.

IT **88507-81-7**, Haynes 214
(elec. insulation on; acid-treated oxide layer as elec. insulating barrier film on alloy strip)

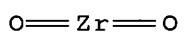
RN 88507-81-7 HCA

CN Nickel alloy, base, Ni 72-79,Cr 15.0-17.0,Al 4.0-5.0,Fe 2.0-4.0,Mn 0-0.5,Mo 0-0.5,Ti 0-0.5,W 0-0.5,Si 0-0.2,C 0-0.05,Zr 0-0.05,Y 0.002-0.050,P 0-0.015,S 0-0.015,B 0-0.006 (UNS N07214) (9CI) (CA INDEX NAME)

Component	Component Percent			Component Registry Number
Ni	72	-	79	7440-02-0
Cr	15.0	-	17.0	7440-47-3
Al	4.0	-	5.0	7429-90-5
Fe	2.0	-	4.0	7439-89-6
Mn	0	-	0.5	7439-96-5
Mo	0	-	0.5	7439-98-7
Ti	0	-	0.5	7440-32-6
W	0	-	0.5	7440-33-7

Si	0	-	0.2	7440-21-3
C	0	-	0.05	7440-44-0
Zr	0	-	0.05	7440-67-7
Y	0.002	-	0.040	7440-65-5
P	0	-	0.015	7723-14-0
S	0	-	0.015	7704-34-9
B	0	-	0.006	7440-42-8

IT **1314-23-4, Zirconia**, processes
(for elec. insulation; acid-treated oxide layer as elec. insulating barrier film on a metal strip)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM C23C028-00
ICS C23C022-74
CC 56-6 (Nonferrous Metals and Alloys)
Section cross-reference(s): 57, 76
ST acid treated oxide insulation metal strip; elec insulation film metal **catalytic** converter; oxide coating elec insulation metal strip; nickel alloy elec insulation oxide coating
IT 12728-71-1 **88507-81-7**, Haynes 214
(elec. insulation on; acid-treated oxide layer as elec. insulating barrier film on alloy strip)
IT **1314-23-4, Zirconia**, processes 1344-28-1, Alumina, processes 12055-23-1, Hafnia 13463-67-7, Titania, processes
(for elec. insulation; acid-treated oxide layer as elec. insulating barrier film on a metal strip)

L70 ANSWER 21 OF 23 HCA COPYRIGHT 2006 ACS on STN
124:125714 Decomposition of ammonia by using **catalysts**.
Nojima, Shigeru; Tokuyama, Rie; Iida, Kozo (Mitsubishi Heavy Industries, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 07275657 A2 **19951024** Heisei, 6 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1994-70486 19940408.
AB In the decompn. by contacting NH3-contg. gases with decompn. **catalysts**, the **catalysts** comprise cryst. silicates having chem. compns. (1 ± 0.8)R2O.[aM2O3.bAl2O3.cMeO].ySiO2 (R = **alkali metal** ions and/or H ion; M = group VIII elements, rare earth elements, Ti, V, Cr, Nb, Sb, Ga; Me = alk. earth elements; a, b, c ≥0; a + b = 1; y/c >12; y >12) as dehydrated condition and x-ray diffraction pattern

shown as table A in the disclosure and supporting Ir as an active metal. NH3 contained in waste gases are decompd. to harmless N without generating byproducts.

IT **167686-68-2P**
(**catalyst** supports; decompn. of ammonia by iridium-cryst. silicate **catalysts** in waste gas treatment)

RN 167686-68-2 HCA

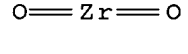
CN Aluminum calcium ruthenium silicon sodium oxide (Al1.6Ca0.25Ru0.4Si25Na0.8O53.65) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	53.65	17778-80-2
Ca	0.25	7440-70-2
Na	0.8	7440-23-5
Si	25	7440-21-3
Ru	0.4	7440-18-8
Al	1.6	7429-90-5

IT **1314-23-4, Zirconia**, uses
(**catalyst** supports; decompn. of ammonia by iridium-**porous support catalysts** in waste gas treatment)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM B01D053-86
ICS B01J023-46; B01J029-26

CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67

ST ammonia decompn **catalyst** support silicate; iridium **catalyst** ammonia decompn; waste gas ammonia removal **catalyst**

IT Waste gases
(ammonia removal from; decompn. of ammonia by iridium-cryst. silicate **catalysts** in waste gas treatment)

IT Zeolites, uses
(A, **catalyst** support; decompn. of ammonia by iridium-**porous support catalysts** in waste gas treatment)

IT Zeolites, uses
(X, **catalyst** support; decompn. of ammonia by iridium-**porous support catalysts** in waste gas treatment)
IT Zeolites, uses
(Y, **catalyst** support; decompn. of ammonia by iridium-**porous support catalysts** in waste gas treatment)
IT Zeolites, uses
(mordenite-type, **catalyst** support; decompn. of ammonia by iridium-**porous support catalysts** in waste gas treatment)
IT Zeolites, uses
(silicalite, **catalyst** support; decompn. of ammonia by iridium-**porous support catalysts** in waste gas treatment)
IT 12772-98-4, Sulfur oxide (SO4)
(**catalyst** support components; decompn. of ammonia by iridium-**porous support catalysts** in waste gas treatment)
IT 167686-66-0P 167686-67-1P **167686-68-2P** 167686-69-3P
167686-70-6P 167686-71-7P 167686-72-8P 167686-73-9P
167686-74-0P 167686-75-1P 167686-76-2P 167686-77-3P
167686-79-5P 167686-80-8P 167686-81-9P
(**catalyst** supports; decompn. of ammonia by iridium-cryst. silicate **catalysts** in waste gas treatment)
IT **1314-23-4, Zirconia**, uses 12004-39-6, Aluminum titanium oxide (Al2TiO5) 12036-70-3, Titanium **zirconium oxide** (TiZrO4) 12141-46-7, Aluminum oxide silicate (Al2O(SiO4)) 13463-67-7, Titania, uses
(**catalyst** supports; decompn. of ammonia by iridium-**porous support catalysts** in waste gas treatment)
IT 7439-88-5, Iridium, uses
(**catalyst**; decompn. of ammonia by iridium-cryst. silicate **catalysts** in waste gas treatment)
IT 7664-41-7, Ammonia, processes
(decompn. of ammonia by iridium-cryst. silicate **catalysts** in waste gas treatment)
IT 1344-28-1, Alumina, uses
(γ- or θ-, **catalyst** supports; decompn. of ammonia by iridium-**porous support catalysts** in waste gas treatment)

L70 ANSWER 22 OF 23 HCA COPYRIGHT 2006 ACS on STN
123:151649 Materials and methods for waste gas purification. Muramatsu,

Akira; Furuyama, Masataka; Yoshida, Kyohide (Riken KK, Japan; Koccatto). Jpn. Kokai Tokkyo Koho JP 07148438 A2 19950613 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-323256 19931129.

AB Treatment of O-rich combustion waste gases contg. NOx comprise 1st **catalysts** of **porous** inorg. oxides **supporting** 0.2-15% (calcd. as element, **based** on the **porous** oxide) Ag or Ag oxide and ≤0.1% (**based** on the **porous** oxide) Pt, Pd, **Ru**, Rh, Ir, and/or Au, and 2nd **catalysts** of **porous** inorg. oxides **supporting** 0.5-20% (calcd. as element **based** on the **porous** oxide) Cu or Cu oxide and optionally ≤10% (**based** on the **porous** oxide) of ≥1 of **alkali metals** and rare earth metals. The **catalysts** are contacted with waste gas, injected with hydrocarbons upstream, at 200-600° for reactive removal of NOx. The **catalysts** and the process is esp. useful for treatment of exhaust gases.

IT **7440-18-8**, **Ruthenium**, uses
(**catalysts** and process for treatment of waste gases contg. NOx)

RN 7440-18-8 HCA

CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IT **1314-23-4**, **Zirconia**, uses
(**porous support**; **catalysts** and process for treatment of waste gases contg. NOx)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O═Zr═O

IC ICM B01J035-02
ICS B01D053-86; B01D053-94; B01J023-89; B01J035-04; F01N003-08

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67

ST waste gas treatment **catalyst**; noble metal **catalyst** nitrogen oxide; copper oxide **catalyst** nitrogen oxide

IT **Catalysts** and **Catalysis**
Exhaust gases
Waste gases
(**catalysts** and process for treatment of waste gases contg. NOx)

IT **Alkali metals**, uses
Rare earth metals, uses
(**catalysts** and process for treatment of waste gases contg. NOx)
IT Hydrocarbons, uses
(reducing agent; **catalysts** and process for treatment of waste gases contg. NOx)
IT 7439-88-5, Iridium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses **7440-18-8**, **Ruthenium**, uses 7440-22-4, Silver, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 20667-12-3, Silver oxide
(**catalysts** and process for treatment of waste gases contg. NOx)
IT 630-08-0, Carbon monoxide, processes 1344-70-3, Copper oxide 11104-93-1, Nitrogen oxide, processes
(**catalysts** and process for treatment of waste gases contg. NOx)
IT **1314-23-4**, **Zirconia**, uses 1344-28-1, Alumina, uses 13463-67-7, Titania, uses
(**porous support**; **catalysts** and process for treatment of waste gases contg. NOx)
IT 115-07-1, Propylene, uses
(reducing agent; **catalysts** and process for treatment of waste gases contg. NOx)

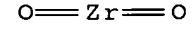
L70 ANSWER 23 OF 23 HCA COPYRIGHT 2006 ACS on STN
109:114997 Ion exchangers from porous silicate glass and their use for treating radioactive wastewater. Macedo, Pedro B.; Hojaji, Hamid; Barkatt, Aaron (Litovitz, Theodore Aaron, USA). PCT Int. Appl. WO 8803915 A1 **19880602**, 46 pp. DESIGNATED STATES: W: JP; RW: BE, DE, FR, GB. (English). CODEN: PIXXD2. APPLICATION: WO 1987-US3006 19871120. PRIORITY: US 1986-932882 19861120; US 1987-68133 19870630.

AB The title material is prepd. by acid leaching of a phase-sepd. base glass contg. 40-80 mol.% SiO2 and 0.2-35 mol.% of ≥1 transition metal oxides. Heat treatment of the base glass leads to formation of an insol. phase and a soln. phase which is leached out. The porous glass may be used as an ion exchanger for the sepn. of, e.g., rare earth or actinide ions, or a support for **catalysts**, enzymes, or for stationary phases in chromatog. packing materials. A base glass of compn. contg. SiO2 55.6, B2O3 33.8, Na2O 6.0, K2O 2.5, and **ZrO2** 2.1 mol.% was heat-treated for phase sepn. and leached with 3M aq. HCl to give a porous glass of compn. contg. SiO2 93.9, B2O3 2.8, Na2O 0.1, K2O <0.1, and **ZrO2** 3.2 wt.%. The porous glass was treated with an ion-exchange soln. that was 3M in NHOH and 3M in NaNO3 to give an ion-exchange material. When a soln. contg. B 3000, Na 1000, Cs 20, and Co 9 mg/L (pH 8.0)e was introduced into a column packed with the ion-

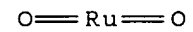
exchanged glass, the column had a capacity of 845 [no. of column vol. equivs. of soln. with decontamination factor (defined) 2], vs. 367 for a porous borosilicate glass. In tests using radioactive solns., the glasses of the invention were shown to be suitable for removing Cs from simulated wastewater from a pressurized-water nuclear reactor (PWR).

IT **1314-23-4**, **Zirconia**, uses and miscellaneous
12036-10-1, **Ruthenium** dioxide
(glass contg., porous silicate, ion exchangers from)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



RN 12036-10-1 HCA
CN Ruthenium oxide (RuO2) (6CI, 8CI, 9CI) (CA INDEX NAME)



IT **7440-46-2**, Cesium, uses and miscellaneous
(removal of, from aq. solns., porous glass ion exchangers for)

RN 7440-46-2 HCA
CN Cesium (8CI, 9CI) (CA INDEX NAME)

IC ICM C03C011-00
ICS G21F009-16; C01F017-00
CC 57-1 (Ceramics)
Section cross-reference(s): 60, 71
ST ion exchanger porous silicate glass; **zirconia** porous glass ion exchanger; cesium ion exchange porous glass
IT Enzymes
(immobilization of, **porous** glass **supports** for)
IT Dyes
(**porous** glass **supports** for)
IT Chromatography, column and liquid
(stationary phases for, **porous** glass **supports**

for)
IT **Alkali metals**, uses and miscellaneous
(ions, porous glass impregnated with, ion exchangers from)
IT **Catalysts** and **Catalysis**
(**supports**, **porous** glass)
IT 7803-62-5D, Silane, org. derivs.
(activation agents, **porous** glass **supports** treated with)
IT 1304-56-9 1304-76-3, Bismuth oxide (unspecified) 1308-38-9, Chromium sesquioxide, uses and miscellaneous 1312-43-2 1314-20-1, Thoria, uses and miscellaneous **1314-23-4**, **Zirconia**, uses and miscellaneous 1332-29-2 1335-25-7, Lead oxide (unspecified) 12024-21-4 **12036-10-1**, **Ruthenium** dioxide 12055-23-1, Hafnia 12624-27-0 12651-21-7 13463-67-7, Titania, uses and miscellaneous
(glass contg., porous silicate, ion exchangers from)
IT **7440-46-2**, Cesium, uses and miscellaneous 10045-97-3, Cesium-137, uses and miscellaneous
(removal of, from aq. solns., porous glass ion exchangers for)

=> d his l83-

FILE 'HCA' ENTERED AT 11:45:48 ON 14 JUL 2006

L83 27945 S (LI OR NA OR K OR RB OR CS)(2A)(METAL#### OR SOURC? OR
L84 2671 S L1 AND L83
L85 37 S L84 AND (L2 OR L20)
L86 54 S L84 AND L16
L87 0 S L84 AND L17
L88 86 S L84 AND L18
L89 0 S L84 AND L19
L90 5 S L85 AND L86
L91 4 S L85 AND L88
L92 5 S L86 AND L88
L93 11 S (L90 OR L91 OR L92) NOT (L68 OR L69 OR L70)
L94 8 S L93 AND 1840-2001/PY,PRY

=> d l94 1-8 cbib abs hitstr hitind

L94 ANSWER 1 OF 8 HCA COPYRIGHT 2006 ACS on STN
137:82812 **Catalyst** for NOx occlusion and reduction in exhaust gases and its production. Itahara, Hiroshi; Tanaka, Toshiyuki; Takahashi, Naoki; Fukushima, Yoshiaki; Sugiura, Masahiro (Toyota

Central Research and Development Laboratories, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2002191977 A2 20020710, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-398427 20001227.

AB The **catalyst** comprises a precious metal, ≥1 composite metal oxide of Ti and other **metals** (es., Ba, K, and Li), and ≥1 metal compds. such as titania and ≥1 oxides or carbonates of alkali metals, alk. earth metals or rare earth metals on monolithic **porous support** . Both the composite metal oxide and the metal compd. have an av. grain diam. of ≤15 nm. The **catalyst** is superior in durability and preventing poisoning by S in dinitration of automotive exhaust gases.

IT **7440-18-8**, **Ruthenium**, uses
(**catalyst** for NOx occlusion and redn. in exhaust gases and its prodn.)

RN 7440-18-8 HCA

CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IC ICM B01J023-58
ICS B01D053-94; F01N003-10; F01N003-28

CC 59-4 (Air Pollution and Industrial Hygiene)

ST **catalyst** nitrogen oxide occlusion redn exhaust gas

IT Exhaust gases (engine)
(**catalyst** for NOx occlusion and redn. in exhaust gases and its prodn.)

IT Alkali metal oxides
Alkaline earth oxides
Rare earth oxides
(**catalyst** for NOx occlusion and redn. in exhaust gases and its prodn.)

IT Nitration **catalysts**
(retro; **catalyst** for NOx occlusion and redn. in exhaust gases and its prodn.)

IT 1304-28-5, Barium oxide, uses 1344-28-1, Alumina, uses 7439-88-5, Iridium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses **7440-18-8**, **Ruthenium**, uses 12047-27-7, Barium titanate, uses 12673-69-7, Potassium titanate 13463-67-7, Titania, uses 39302-37-9, Lithium titanate
(**catalyst** for NOx occlusion and redn. in exhaust gases and its prodn.)

IT 11104-93-1, Nitrogen oxide, processes
(**catalyst** for NOx occlusion and redn. in exhaust gases and its prodn.)

L94 ANSWER 2 OF 8 HCA COPYRIGHT 2006 ACS on STN
136:283564 **Catalysts** for automotive exhaust gas treatment.
Inoue, Masahiro; Miyazaki, Tatsuo; Tokubuchi, Nobuyuki; Arita, Masaaki (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002102704 A2 20020409, 19 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-302212 20001002.

AB Automotive exhaust gases contg. unburned C particulates are treated by complete combustion with a 1st **catalyst** on monolithic inorg. oxide support having a three-dimensional structure in the upper stream, then a 2nd downstream. The 1st **catalyst** contains ≥1 precious metals such as Pt, Pd, Rh and **Ru** on a monolithic support made of ≥1 inorg. oxides such as Ta2O5, Nb2O5, WO3, SnO2, SiO2, TiO2, Al2O3, and **ZrO2** on a monolithic inorg. oxide support, esp. honeycomb-shaped ceramic filter. The 2nd **catalyst** contains ≥1 transition metal oxides of Cu, Mn, Co, V, Mo, and W, and ≥1 alkali **metal** sulfates of **Li**, Na, K, Rb, Cs and their mixts.

IT **7440-18-8, Ruthenium**, uses
(combustion **catalysts** on honeycomb-shaped ceramic filter for exhaust gas treatment)

RN 7440-18-8 HCA
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IT **1314-23-4, Zirconia**, uses
(monolithic support; combustion **catalysts** on honeycomb-shaped ceramic filter for exhaust gas treatment)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O═Zr═O

IC ICM B01J027-055
ICS B01D053-94; B01J023-42; B01J023-44; B01J023-46; B01J023-62; B01J023-648; B01J023-652; B01J035-04; F01N003-02; F01N003-08; F01N003-10; F01N003-24; F01N003-28

CC 59-3 (Air Pollution and Industrial Hygiene)

ST combustion **catalyst** honeycomb ceramic filter exhaust gas

IT Exhaust gases (engine)
(**catalysts** on honeycomb-shaped ceramic filter for

exhaust gas treatment)

IT Combustion **catalysts**
(on honeycomb-shaped ceramic filter for exhaust gas treatment)

IT 1308-06-1, Cobalt oxide (Co3O4) 1313-13-9, Manganese oxide (MnO2), uses 1313-27-5, Molybdenum trioxide, uses 1314-35-8, Tungsten trioxide, uses 1314-62-1, Vanadium oxide (V2O5), uses 1317-38-0, Copper oxide (CuO), uses 7439-96-5, Manganese, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, **Ruthenium**, uses 7440-33-7, Tungsten, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-62-2, Vanadium, uses 7488-54-2, Rubidium sulfate 7757-82-6, Sodium sulfate, uses 7778-80-5, Potassium sulfate, uses 10294-54-9, Cesium sulfate (Cs2SO4) 10377-48-7, Lithium sulfate 13463-67-7, Titania, uses 14958-34-0, Copper vanadium oxide (CuV2O6) 14958-36-2, Copper vanadium oxide (Cu3V2O8) 14958-37-3, Copper vanadium oxide (Cu5V2O10)
(combustion **catalysts** on honeycomb-shaped ceramic filter for exhaust gas treatment)

IT 1313-96-8, Niobium pentoxide 1314-23-4, **Zirconia**, uses 1314-61-0, Tantalum pentoxide 1344-28-1, Alumina, uses 7631-86-9, Silica, uses
(monolithic support; combustion **catalysts** on honeycomb-shaped ceramic filter for exhaust gas treatment)

L94 ANSWER 3 OF 8 HCA COPYRIGHT 2006 ACS on STN

134:371865 Simple **catalytic** oxygen generator. Ueno, Shinji (Janex K. K., Japan). Jpn. Kokai Tokkyo Koho JP 2001139306 A2 **20010522**, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-317629 19991109.

AB The O generator, useful for supplying O to emergency patients, climbers, divers, athletes after sporting, etc., has (a) a tank which has an O blowout nozzle and a net container packed with O generation **sources** such **Na** peroxocarbonate, etc. generating H2O2 and **catalysts** such as Pd, Pt, **Ru** , Ir, etc. **supported** on **porous** carriers, and generates O upon addn. of H2O, (b) a water-filled tube which has an O take out hole and passes O generated in the tank, and (c) a valve which feeds O from the tank to the water-filled tube and prevents backflow of H2O from the tube to the tank. The generator achieves stable O supply for a long time and can be reusable by complementing O generation source and **catalysts**. Illustrations of the app. are also given.

IC ICM C01B013-02
ICS B01J023-38; A61M016-10; B62B007-08

CC 63-8 (Pharmaceuticals)

ST reusable simple **catalytic** oxygen generator

IT **Catalysts**
Medical equipment

(simple and reusable **catalytic** oxygen generator which generates O by adding H2O to tank contg. H2O2-generating substances and **catalysts**)

IT Rubber, biological studies
(valve, backflow prevention; simple and reusable **catalytic** oxygen generator which generates O by adding H2O to tank contg. H2O2-generating substances and **catalysts**)

IT 7782-44-7P, Oxygen, biological studies
(simple and reusable **catalytic** oxygen generator which generates O by adding H2O to tank contg. H2O2-generating substances and **catalysts**)

IT 7732-18-5, Water, reactions
(simple and reusable **catalytic** oxygen generator which generates O by adding H2O to tank contg. H2O2-generating substances and **catalysts**)

L94 ANSWER 4 OF 8 HCA COPYRIGHT 2006 ACS on STN

134:44374 Promoted supported platinum-group metals for steam reforming-water gas shift **catalysts** for methanol and hydrocarbons. Takahashi, Hiroaki (Toyota Jidosha K. K., Japan). Ger. Offen. DE 10010007 A1 **20001221**, 32 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2000-10010007 20000302. PRIORITY: JP 1999-55946 19990303; JP 1999-55943 19990303; JP 1999-56131 19990303; JP 1999-291119 19991013; JP 1999-355873 19991015; JP 2000-002259 20000111.

AB Methanol steam reforming **catalysts** with water gas shift reaction capability, for maintaining low CO and high H2 concns. in the product gas, consists of Pt, Pd, Rh, Ir, or **Ru**, and a Group IIB or Group IIIB element (esp. Zn, Ga, or In) supported on a basic metal oxide (e.g., CeO2, TiO2, or **ZrO2**). In addn., the **catalysts** may contain 0.5-5.0 wt.% alkali **metals** (e.g., **K**, Cs, or Na) and alk. earth metals (Ca, Mg, or Ba). The **catalysts** can also be used for hydrocarbon steam reforming.

IT **7440-18-8**, **Ruthenium**, uses
(**catalysts** contg.; promoted supported platinum-group metals for steam reforming-water gas shift **catalysts** for methanol and hydrocarbons)

RN 7440-18-8 HCA

CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

IC ICM B01J023-54

ICS B01J023-56; B01J023-60; B01J023-62; C01B003-32
CC 51-11 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 49
ST methanol steam reforming water gas shift **catalyst**; platinum methanol steam reforming; hydrocarbon steam reforming **catalyst**
IT Alkali metals, uses
Alkaline earth metals
Group IIB elements
Group IIIB elements
(**catalysts** contg.; promoted supported platinum-group metals for steam reforming-water gas shift **catalysts** for methanol and hydrocarbons)
IT Steam reforming **catalysts**
Water gas shift reaction **catalysts**
(promoted supported platinum-group metals for steam reforming-water gas shift **catalysts** for methanol and hydrocarbons)
IT Platinum-group metals
(promoted supported platinum-group metals for steam reforming-water gas shift **catalysts** for methanol and hydrocarbons)
IT Petroleum reforming **catalysts**
(steam reforming; promoted supported platinum-group metals for steam reforming-water gas shift **catalysts** for methanol and hydrocarbons)
IT 7439-88-5, Iridium, uses 7439-95-4, Magnesium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-09-7, Potassium, uses 7440-16-6, Rhodium, uses **7440-18-8**, **Ruthenium**, uses 7440-23-5, Sodium, uses 7440-39-3, Barium, uses 7440-46-2, Cesium, uses 7440-55-3, Gallium, uses 7440-66-6, Zinc, uses 7440-70-2, Calcium, uses 7440-74-6, Indium, uses
(**catalysts** contg.; promoted supported platinum-group metals for steam reforming-water gas shift **catalysts** for methanol and hydrocarbons)
IT 1333-74-0P, Hydrogen, preparation
(manuf. of; promoted supported platinum-group metals for steam reforming-water gas shift **catalysts** for methanol and hydrocarbons)
IT 67-56-1, Methanol, reactions
(steam reforming of; promoted supported platinum-group metals for steam reforming-water gas shift **catalysts** for methanol and hydrocarbons)

L94 ANSWER 5 OF 8 HCA COPYRIGHT 2006 ACS on STN
128:312134 Exhaust gas purification **catalyst**, exhaust gas

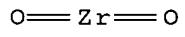
purification apparatus, and exhaust gas purification method using the **catalyst** and the apparatus. Shinotsuka, Norihiro; Kitahara, Yuichi; Inoue, Norihiro; Hiratsuka, Toshifumi; Kuroda, Osamu; Iizuka, Hidehiro; Doi, Yoshita (Hitachi, Ltd., Japan; Hitachi Car Electronics K. K.; Hitachi Car Engineering Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 10118494 A2 **19980512** Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-280972 19961023.

AB This **catalyst** for removing NOx from exhaust gases even in the presence of O comprises a **porous support** and noble metals and ≥1 of K, rare earth **metals** , and alk. earth metals deposited on the support. The **catalysts** alternatively comprises a **porous support**, a noble metal **catalytic** layer, and K and Fe oxide deposited on the **catalytic** layer. The exhaust gas purifn. app. contg. the defined **catalyst** is so constituted as to remove hydrocarbons, NOx, and CO in the presence of O. The method for purifying exhaust gases from internal combustion engines is carried out by using the **catalyst**. The **catalyst** is provided with high NOx removal efficiency in lean-burn conditions and high SOx resistance and durability.

IT **1314-23-4**, **Zirconia**, uses
(**porous support**; exhaust gas purifn. **catalyst** with high nitrogen oxide purifn. efficiency and sulfur oxide resistance and app. and method for exhaust gas purifn.)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM B01J023-54
ICS B01D053-94; B01J023-04; B01J023-63; B01J023-58; B01J027-25

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67

ST exhaust gas nitrogen oxide removal **catalyst**; sulfur oxide resistance **catalyst** exhaust purifn

IT Alkaline earth metals
Platinum-group metals
Rare earth metals, uses
(as **catalyst**; exhaust gas purifn. **catalyst** with high nitrogen oxide purifn. efficiency and sulfur oxide resistance and app. and method for exhaust gas purifn.)

IT Hydrocarbons, uses
(as reducing agent; exhaust gas purifn. **catalyst** with high nitrogen oxide purifn. efficiency and sulfur oxide resistance and app. and method for exhaust gas purifn.)

IT Exhaust gases (engine)
(exhaust gas purifn. **catalyst** with high nitrogen oxide purifn. efficiency and sulfur oxide resistance and app. and method for exhaust gas purifn.)
IT **Catalysts**
(three-way; exhaust gas purifn. **catalyst** with high nitrogen oxide purifn. efficiency and sulfur oxide resistance and app. and method for exhaust gas purifn.)
IT 1332-37-2, Iron oxide, uses 7439-95-4, Magnesium, uses 7440-06-4, Platinum, uses 7440-09-7, Potassium, uses 7440-16-6, Rhodium, uses 7440-24-6, Strontium, uses 7440-45-1, Cerium, uses
(**catalyst**; exhaust gas purifn. **catalyst** with high nitrogen oxide purifn. efficiency and sulfur oxide resistance and app. and method for exhaust gas purifn.)
IT **1314-23-4, Zirconia**, uses 1344-28-1, Alumina, uses 13463-67-7, Titania, uses
(**porous support**; exhaust gas purifn. **catalyst** with high nitrogen oxide purifn. efficiency and sulfur oxide resistance and app. and method for exhaust gas purifn.)
IT 12624-32-7, Sulfur oxide
(removal from exhaust gas; exhaust gas purifn. **catalyst** with high nitrogen oxide purifn. efficiency and sulfur oxide resistance and app. and method for exhaust gas purifn.)
IT 630-08-0, Carbon monoxide, processes
(removal from exhaust gas; exhaust gas purifn. **catalyst** with high nitrogen oxide purifn. efficiency and sulfur oxide resistance and app. and method for exhaust gas purifn.)
IT 11104-93-1, Nitrogen oxide, processes
(removal of; exhaust gas purifn. **catalyst** with high nitrogen oxide purifn. efficiency and sulfur oxide resistance and app. and method for exhaust gas purifn.)

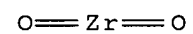
L94 ANSWER 6 OF 8 HCA COPYRIGHT 2006 ACS on STN
124:296676 Microstructural properties of non-**supported** **microporous** ceramic membrane top-layers obtained by the sol-gel process. de Lange, R. S. A.; Hekkink, J. H. A.; Keizer, K.; Burggraaf, A. J. (University of Twente, Faculty of Chemical Technology, Laboratory for Inorganic Chemistry, Materials Science and Catalysis, PO Box 217, AE Enschede, 7500, Neth.). Journal of Non-Crystalline Solids, 195(3), 203-17 (English) **1996**. CODEN: JNCSBJ. ISSN: 0022-3093. Publisher: Elsevier.
AB Dried and calcined non-supported membrane top-layers of SiO2, SiO2/TiO2, SiO2/**ZrO2** (10, 20 and 30 mol% TiO2 and **ZrO2**, resp.) and SiO2/Al2O3 (10 mol% AlO1.5) were prepd. using acid **catalyzed** hydrolysis and condensation of alkoxides in ethanol. The microstructure was detd. using nitrogen physisorption. The **modified**

G. Horvath-K. Kawazoe model (1983) for nitrogen adsorption in cylindrical pores was used for pore size assessment. SiO2 non-supported membrane top layers were 100% microporous with an av. porosity of 30-37%, depending on drying conditions. The bimodal pore size distribution shows a max. at an effective pore diam. of 0.5 nm, and a broader tail with a weaker max. around 0.75 nm. **Microporous** non- **supported** binary systems can be prepd. with porosities between 15 and 40%. The high reactivity of the Ti, Zr, Al-alkoxides requires carefully chosen conditions. Too much water results in dense materials. The pore size distributions (PSDs) of the binary systems resemble the PSDs for silica.

IT **1314-23-4, Zirconium oxide (ZrO2)**, uses
(membranes, silica-based; microstructure of non-**supported** **microporous** silica-**based** ceramic membrane top-layers obtained by the sol-gel process)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



CC 57-2 (Ceramics)

ST silica membrane top layer microstructure; alumina silica membrane top layer microstructure; titania silica membrane top layer microstructure; **zirconia** silica membrane top layer microstructure; sol gel silica membrane microstructure

IT Ceramic materials and wares
(membranes, silica-based; microstructure of non-**supported** **microporous** silica-**based** ceramic membrane top-layers obtained by the sol-gel process)

IT Membranes
(silica-based; microstructure of non-**supported** **microporous** silica-**based** ceramic membrane top-layers obtained by the sol-gel process)

IT Pore
(size distribution; microstructure of non-**supported** **microporous** silica-**based** ceramic membrane top-layers obtained by the sol-gel process)

IT **1314-23-4, Zirconium oxide (ZrO2)**, uses 1344-28-1, Aluminum oxide (Al2O3), uses 13463-67-7, Titanium oxide (TiO2), uses
(membranes, silica-based; microstructure of non-**supported** **microporous** silica-**based** ceramic membrane top-layers obtained by the sol-gel process)

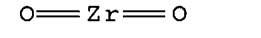
IT 7631-86-9P, Silica, preparation
(membranes; microstructure of non-supported microporous silica-based ceramic membrane top-layers obtained by the sol-gel process)

L94 ANSWER 7 OF 8 HCA COPYRIGHT 2006 ACS on STN
120:172188 Treatment of flue gases from semiconductor manufacturing plants. Saito, Jun; Mitsuishi, Takatoshi; Waki, Hiroshi; Myagawa, Hiroji; Amita, Hiroshige (Mitsui Toatsu Chemicals, Japan). Jpn. Kokai Tokkyo Koho JP 05269347 A2 19931019 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-18647 19930205.

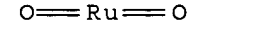
AB Flue gases contg. SiH4, Si2H6, Si3H8, AsH4, PH3, B2H6, etc. from semiconductor manufg. plants are treated by passage through a fixed bed of catalysts contg. ≥1 solid metal oxides of Li, Na, K, Rb, Cs, Be, Mg, Ca, Sr, Ba, Al, Ga, In, Tl,Si, Ge, Sn, Pb, Sb, Bi, Cu, Ag, Au, Zn, Cd, Hg, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Y, Zr, Nb, Mo, Ru, Rh, Pd, Hf, Ta, W, Re, Os, Pt, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Th, and U at ≤200° to decomp. the noxious compds. to <0.5 ppm. Preferably, the sp. surface area of the solid metal oxides is ≥0.1 m2/g. Thus, a flue gas contg. 980 ppm SiH4 was passed through the fixed bed of Fe2O3-Cr2O3 catalysts (av. size 30-40 mesh) in a quartz column at 200°, resulting in the decreasing of SiH4 concn. to <0.1 ppm.

IT 1314-23-4, Zirconium oxide (ZrO2), uses 12036-10-1, Ruthenium oxide (RuO2)
(catalysts contg., for silanes removal from flue gases by decompn., in semiconductor manufg. plants)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



RN 12036-10-1 HCA
CN Ruthenium oxide (RuO2) (6CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM B01D053-36
ICS B01D053-34; B01J020-04; B01J020-06
CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67, 76

ST flue gas **catalyst** semiconductor manufg; iron chromium oxide **catalyst** decompn

IT Flue gases
(from semiconductor manufg. plants, silanes removal from, by decompn., **catalysts** for)

IT Decomposition **catalysts**
(lithium oxide-nickel oxide, for silanes removal from flue gases from semiconductor manufg. plants)

IT 1301-96-8, Silver oxide (AgO) 1304-28-5, Barium oxide (BaO), uses 1304-56-9, Beryllium oxide (BeO) 1304-76-3, Bismuth oxide (Bi2O3), uses 1305-78-8, Calcium oxide (CaO), uses 1306-19-0, Cadmium oxide (CdO), uses 1307-96-6, Cobalt oxide (CoO), uses 1308-38-9, Chromium oxide (Cr2O3), uses 1308-87-8, Dysprosium oxide (Dy2O3) 1309-37-1, Iron oxide (Fe2O3), uses 1309-48-4, Magnesium oxide (MgO), uses 1309-64-4, Antimony oxide (Sb2O3), uses 1312-43-2, Indium oxide (In2O3) 1312-81-8, Lanthanum oxide (La2O3) 1313-13-9, Manganese oxide (MnO2), uses 1313-27-5, Molybdenum oxide (MoO3), uses 1313-97-9, Neodymium oxide (Nd2O3) 1313-99-1, Nickel oxide (NiO), uses 1314-08-5, Palladium oxide (PdO) 1314-13-2, Zinc oxide (ZnO), uses 1314-15-4, Platinum oxide (PtO2) 1314-20-1, Thorium oxide, uses **1314-23-4**, **Zirconium oxide** (ZrO2), uses 1314-32-5, Thallium oxide (Tl2O3) 1314-35-8, Tungsten oxide (WO3), uses 1314-36-9, Yttrium oxide (Y2O3), uses 1314-37-0, Ytterbium oxide (Yb2O3) 1314-62-1, Vanadium oxide (V2O5), uses 1317-36-8, Lead oxide (PbO), uses 1317-38-0, Copper oxide (CuO), uses 1317-39-1, Copper oxide (Cu2O), uses 1344-28-1, Aluminum oxide (Al2O3), uses 1345-25-1, Iron oxide (FeO), uses 7631-86-9, Silicon oxide (SiO2), uses 11113-93-2, Uranium oxide 12024-21-4, Gallium oxide (Ga2O3) 12034-59-2, Niobium oxide (NbO2) **12036-10-1**, **Ruthenium** oxide (RuO2) 12036-14-5, Tantalum oxide (TaO2) 12036-32-7, Praseodymium oxide (Pr2O3) 12036-44-1, Thulium oxide (Tm2O3) 12055-23-1, Hafnium oxide (HfO2) 12057-24-8, Lithium oxide (Li2O), uses 12060-08-1, Scandium oxide (Sc2O3) 12060-58-1, Samarium oxide (Sm2O3) 12061-16-4, Erbium oxide (Er2O3) 12064-62-9, Gadolinium oxide (Gd2O3) 12136-45-7, Potassium oxide (K2O), uses 13463-67-7, Titanium oxide (TiO2), uses 18282-10-5, Tin oxide (SnO2) 20816-12-0, Osmium oxide (OsO4)
(**catalysts** contg., for silanes removal from flue gases by decompn., in semiconductor manufg. plants)

IT 1590-87-0, Disilane (Si2H6) 7783-26-8, Trisilane 7784-42-1, Arsine 7803-51-2, Phosphine 7803-62-5, Silane, miscellaneous 19287-45-7, Diborane
(removal of, from flue gases from semiconductor manufg. plants, by decompn., **catalysts** for)

L94 ANSWER 8 OF 8 HCA COPYRIGHT 2006 ACS on STN
107:137345 Process for removing sulfur from a hydrocarbon feedstream.
Field, Leslie A. (Chevron Research Co., USA). S. African ZA 8604295 A **19870225**, 17 pp. (English). CODEN: SFXXAB.
APPLICATION: ZA 1986-4295 19860609.

AB A process for removing S from a hydrocarbon feedstream comprises contacting the feedstream with a S sorbent contg. a Group IA or IIA metal component **supported** on a **porous** refractory inorg. oxide support. Preferred **metal** components include **Na**, K, Ca, and Ba. The sorbent can be prepd. by impregnating a preformed support with aq. Group IA or IIA metal salt soln., drying, and calcining. Alternatively, the sorbent can be prepd. by peptizing a support to form a plastic mass, mulling the mass with a compn. contg. Group IA or IIA metals, extruding, drying, and calcining. The process can further include conversion over a Pt **catalyst** (e.g., to convert thiophenic S to H2S). Naphtha (b. 160-254°F) was fed over a layered **catalyst** (e.g., Pt-contg., with sorbent and reforming **catalyst** layers) under reforming conditions; the reforming **catalyst** was not deactivated by the S to any measurable extent.

IT **1314-23-4**, **Zirconia**, uses and miscellaneous
(support, for alkali or alk. earth metals as sulfur sorbents, for reformer feeds)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IC ICM C10G
CC 51-6 (Fossil Fuels, Derivatives, and Related Products)
ST reforming desulfurization sorbent compn; platinum reforming desulfurization **catalyst**; naphtha reforming desulfurization **catalyst** sorbent

IT 7440-06-4, Platinum, uses and miscellaneous
(**catalysts**, for conversion of thiophenic sulfur to hydrogen sulfide, combined with sorbents, for desulfurization of reformer feeds)

IT **1314-23-4**, **Zirconia**, uses and miscellaneous
12068-50-7, Halloysite 12174-11-7, Attapulgite 13463-67-7, Titania, uses and miscellaneous 63800-37-3, Sepiolite
(support, for alkali or alk. earth metals as sulfur sorbents, for reformer feeds)